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san diego state college

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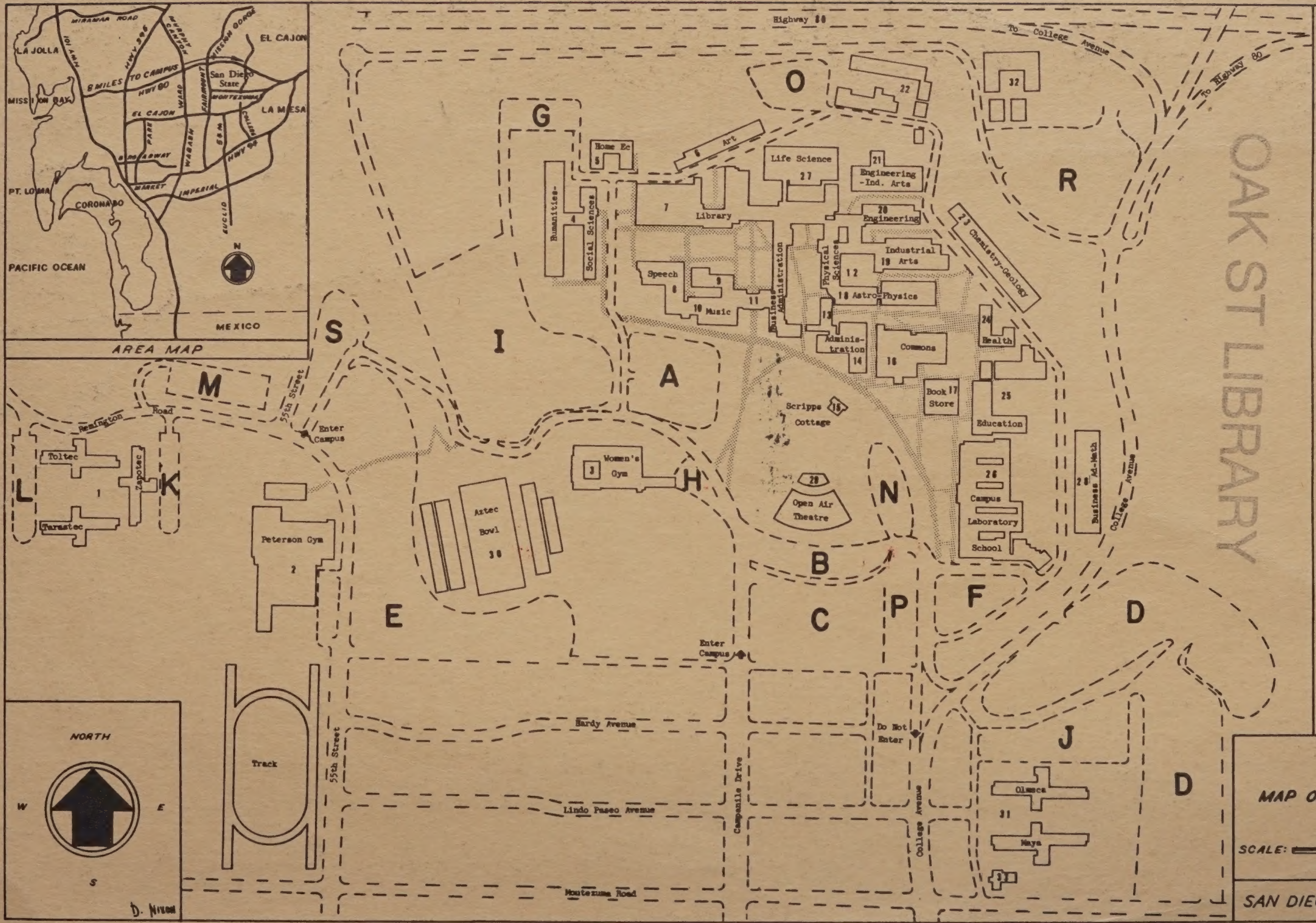
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Hardy Avenue
Lindo Paseo Avenue
Montezuma Road
Track
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Women's Gym 3
Aztec Bowl 30
Open Air Theatre 29
Scripps Cottage 15
Library 7
Speech 8
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10 Music
11 Business Administration
12 Physical Sciences
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Adminis-tration 14
Commons 16
Book Store 17
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Industrial 19 Arts
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AREA MAP
LA JOLLA
MISSION BAY
PT. LOMA
CORONADO
PACIFIC OCEAN
MEXICO
EL CAJON
LA MESA
San Diego State
MIRAMAR ROAD
101 ALT
HWY 395
MURPHY CANYON
MISSION GORGE
8 MILES
TO CAMPUS
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FAIRMOUNT
MONTEZUMA
COLLEGE
EL CAJON
PARK
WABASH
54th
HWY 94
BROADWAY
MARKET
IMPERIAL
EUCLID
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NORTH
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D. Nixon

MAP OF THE CAMPUS

SCALE: 100 200 300
1 inch = 100 feet

SAN DIEGO STATE COLLEGE

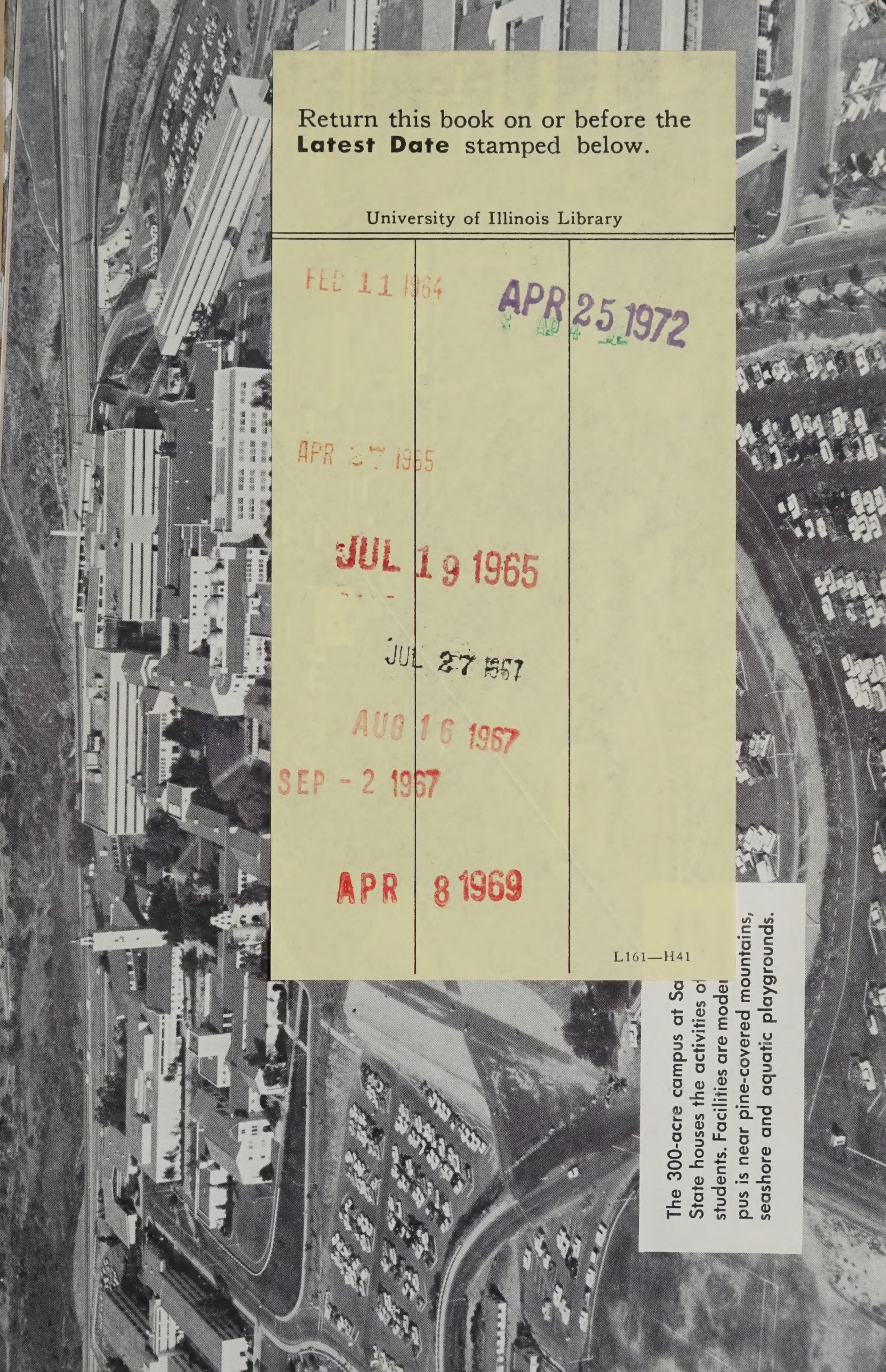
PARKING

A.	Employees
B.	Employees
C.	Employees and Visitors
D.	Students
E.	Students
F.	Employees
G.	Employees
H.	Employees
I.	Students
J.	Dormitory Students
K.	Dormitory Students
L.	Dormitory Students
M.	Dormitory Students
N.	Two-wheeled Vehicles
O.	Employees
P.	Parking Meters
R.	Students and Employees
S.	Students

BUILDINGS

1.	Men's Dormitories
2.	Peterson Gymnasium
3.	Women's Gymnasium
4.	Humanities-Social Sciences
5.	Home Economics
6.	Art
7.	Library
8.	Speech Arts
9.	Little Theatre
10.	Music
11.	Business Administration
12.	Physical Sciences
13.	Faculty Cafeteria
14.	Administration
15.	Scripps Cottage
16.	Aztec Dining Commons
17.	Aztec Shops
18.	Physics-Astronomy
19.	Industrial Arts
20.	Engineering
21.	Engineering-Industrial Arts
22.	Plant Operations
23.	Chemistry-Geology
24.	Health Services
25.	Education
26.	Campus Laboratory School
27.	Life Sciences
28.	Business Administration-Math
29.	Open Air Theatre
30.	Aztec Bowl
31.	Women's Dormitories
32.	T-Buildings (1-12)
33.	Home Management Residence

OAK ST LIBRARY



The 300-acre campus at Sa
State houses the activities o
students. Facilities are mode
pus is near pine-covered mountains,
seashore and aquatic playgrounds.

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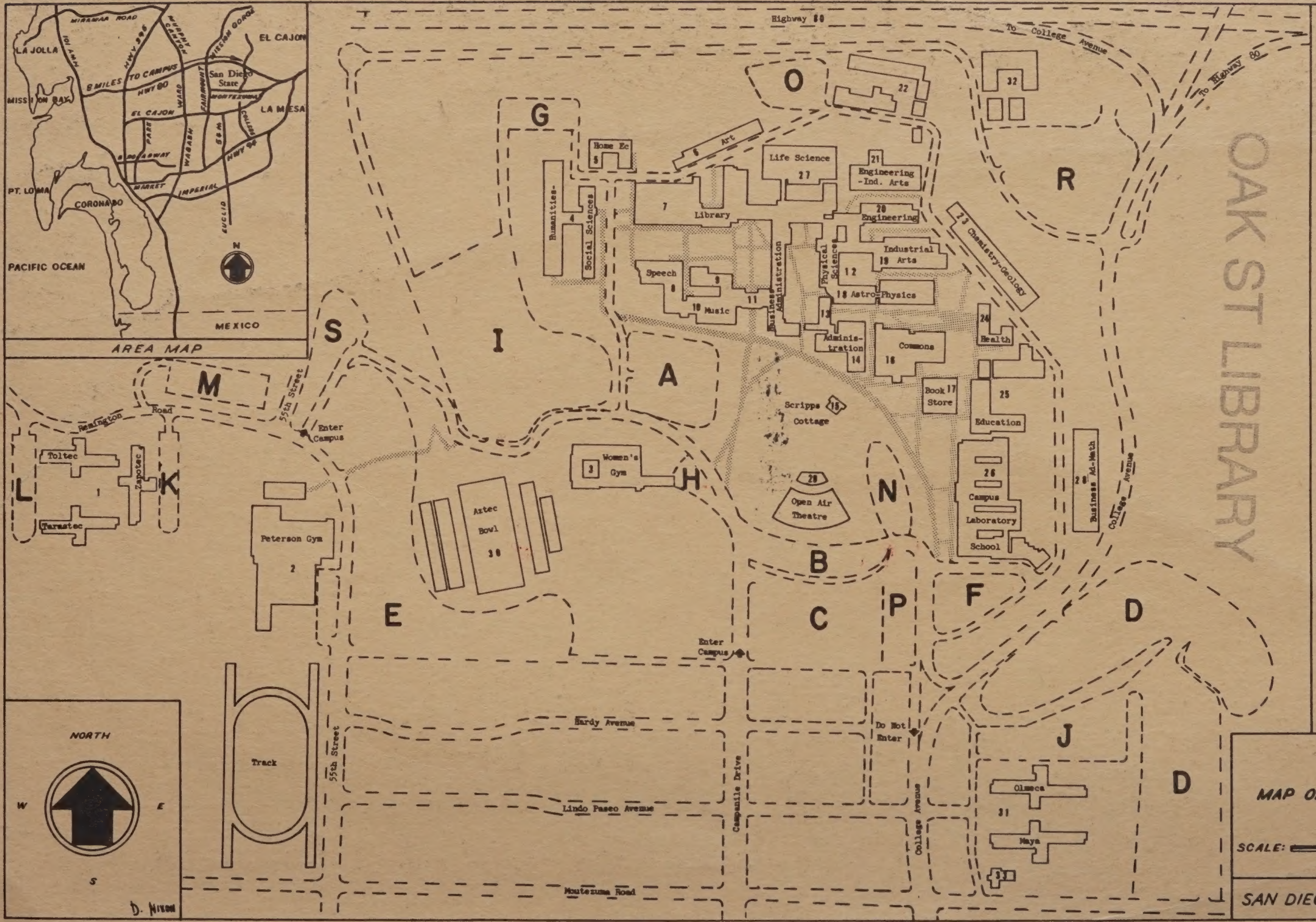

AREA MAP
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MISSION GORGE
EL CAJON
8 MILES TO CAMPUS
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San Diego State
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OAK ST LIBRARY

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I.	Students
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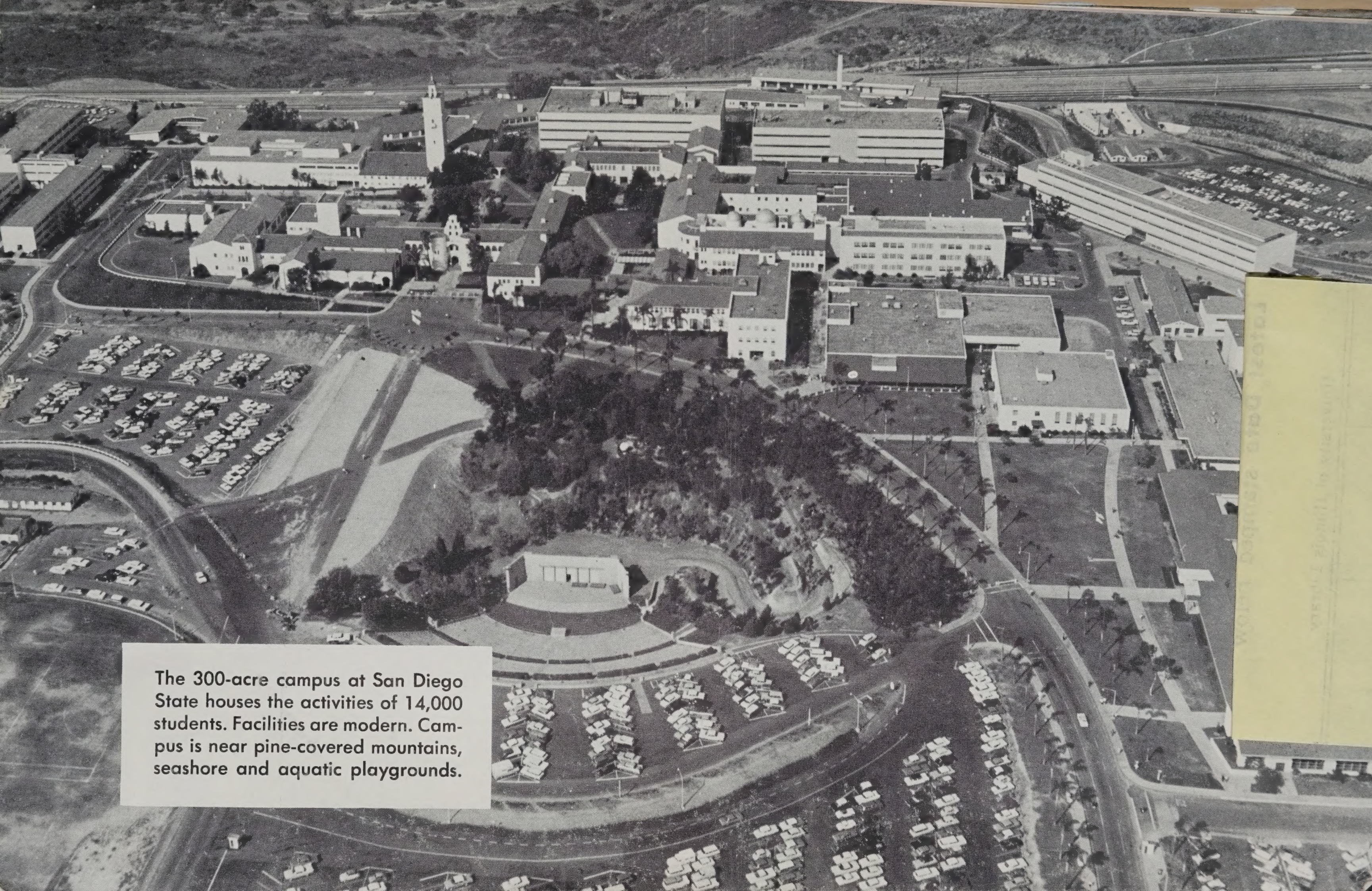
MAP OF THE CAMPUS

SCALE: 100 200 300
1 inch = 100 feet

SAN DIEGO STATE COLLEGE



The 300-acre campus at San Diego State houses the activities of 14,000 students. Facilities are modern. Campus is near pine-covered mountains, seashore and aquatic playgrounds.

FACULTY RECITAL
MERVIN S. SNIDER

▲ The Moorish beauty of the Music Auditorium, showcase for student musical talent.

Students relax between classes for conversation in the Main Quad. ▼

General Catalog

and

ANNOUNCEMENT OF COURSES

VOLUME 50

APRIL 1963

SAN DIEGO STATE COLLEGE

SAN DIEGO, CALIFORNIA

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THE COLLEGE

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1963

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1963-1964 ACADEMIC CALENDAR

SUMMER SESSIONS, 1963

June 10-21	Intersession (2 weeks).
June 24-August 2	Term I summer session (6 weeks).
August 5-23	Term II summer session (3 weeks).

FALL SEMESTER, 1963

July 15	Last day to file application for admission or readmission to the fall semester.
July 13, or August 10 or 24	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
September 13	General Culture test for transfer students entering secondary education, 8.30 a.m.-12 noon. Offered again October 5.
September 14	Fundamentals test for transfer students entering elementary or kindergarten-primary education, 8.30 a.m.-12 noon.
September 16	Opening date of the academic year.
September 16-20	Testing, advising, residency clearance, and registration week.
September 17	Mathematics placement examinations, 8 a.m.-1 p.m., for students planning to enroll in Math. 3, 4, 12, 21, 22, 40, 50; or Economics 2.
September 18-20	Registration, payment of fees, advising, and enrollment in classes.
September 21	Registration of students enrolling only in classes meeting at four o'clock or later. Write Extended Services for complete information.
September 23	First day of classes.
September 24	File applications for admission to teacher education. Assembly, 11 a.m.
September 28	Fundamentals test, 8.30 a.m.-12 noon.
October 5	General Culture test, 8-11 a.m.
October 7	Last day to apply for refunds.
October 11	Last day to withdraw from class without penalty for unsatisfactory work.
October 11	Last day to file application for mid-year graduation.
November 9	End of seventh week of classes. Deficiency notices due.
November 11	Holiday—Veterans' Day.
November 22	Last day to withdraw from class or change program.
November 28-30	Thanksgiving recess.
December 6	Last day to file application for June or summer graduation.
December 7 or January 4	Admissions tests for spring semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
December 14	Last day of classes before Christmas recess.
December 16-January 1	Christmas recess.
January 2	Classes resume.
January 8	Last day for a complete withdrawal from college.
January 21	Last day of classes before final examinations.
January 22	First day of final examinations.
January 31	Last day of the fall semester.

SPRING SEMESTER, 1964

December 15	Last day to file application for admission or readmission to the spring semester.
December 7 or January 4	Admissions tests for spring semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
February 1	Fundamentals test for transfer students entering elementary or kindergarten-primary education, 8.30 a.m.-12 noon.
February 3-7	Testing, advising, residency clearance, and registration week.
February 3	Mathematics placement examinations, 8 a.m.-1 p.m., for students planning to enroll in Math. 3, 4, 12, 21, 22, 40, 50; or Economics 2.
February 3	First day, second semester.
February 4	General Culture test for transfer students entering secondary education, 8.30 a.m.-12 noon. Offered again March 14.
February 5-7	Registration, payment of fees, advising, and enrollment in classes.
February 8	Registration of students enrolling only in classes meeting at four o'clock or later. Write Extended Services for complete information.
February 10	First day of classes.
February 11	File applications for admission to teacher education. Assembly, 11 a.m.
February 12	Holiday—Lincoln's birthday.
February 15	Fundamentals test, 8.30 a.m.-12 noon.
February 22	Holiday—Washington's birthday.
February 24	Last day to apply for refunds.
February 27	Last day to withdraw from class without penalty for unsatisfactory work.
March 14	General Culture test for graduates and students entering secondary education. 8-11 a.m.
March 21	Last day of classes before spring recess.
March 23-28	Spring recess.
March 30	Classes resume.
April 4	End of seventh week of classes. Deficiency notices due.
April 10	Last day to withdraw from classes or change program.
April 25, or May 2 or 9	Admissions tests for fall semester for transfer students: College aptitude test; and writing competency test for students transferring with 45 units or more. Reservation for tests made at time of application for admission to the college.
May 3	San Diego State College Founders' Day.
May 19	Last day for a complete withdrawal from college.
May 30	Holiday—Memorial Day.
June 2	Last day of classes before final examinations.
June 3	First day of final examinations.
June 7	Baccalaureate services.
June 12	Commencement. Last day of the spring semester.

SUMMER SESSIONS, 1964

June 15-26	Intersession (2 weeks).
June 29-August 7	Term I summer session (6 weeks).
August 10-28	Term II summer session (3 weeks).

SCHEDULE OF FEES

Fees are subject to change upon approval by the Trustees
of the California State Colleges.

FEES PAYABLE AT TIME OF REGISTRATION (PER SEMESTER)

Fees for more than six units:

Materials and service	$38.00
Student activity fee	8.00
Auditors pay same fees as students carrying courses for credit.	
Total required fees	$46.00

Fees for six units or less:

Materials and service	19.50
Auditors pay same fees as students carrying courses for credit.	

Tuition for nonresident student:

(In addition to materials and service and activity fees)

Nonresident student enrolled for 15 units or more	250.00
Nonresident student enrolled for less than 15 units, or fraction thereof (per unit)	17.00

(For fee-paying purposes, zero unit courses are counted as one unit)

Tuition for foreign student (citizen and resident of a foreign country):

(In addition to materials and service and activity fees)

Foreign student enrolled for 15 units or more	127.50
Foreign student enrolled for less than 15 units or fraction thereof (per unit)	8.50

(For fee-paying purposes, zero unit courses are counted as one unit)

Parking fees:

Students carrying more than six units	13.00
Students carrying six units or less	6.00
Each alternate car in addition to first vehicle	1.00
Two wheeled, self-propelled vehicle:	
Student carrying more than six units	3.25
Student carrying six units or less	1.50

MISCELLANEOUS FEES

(Fees payable when service is rendered)

Application for admission or readmission	5.00
Late registration	5.00
Change of program	1.00
Failure to meet administratively required appointment or time limit	2.00
Transcript of record (first copy free)	1.00
R.O.T.C. deposit (unexpended portion is refundable)	10.00
Check returned for any cause	2.00
Studio lesson, per lesson per student	1.00 to 6.00
Current fee per semester (15 40-minute lessons)	75.00
Organ practice	10.00
Loss or damage of equipment and library books	Cost

Schedule of Fees

REGULAR SESSION FEE REFUNDS

Materials and service fees:

To be eligible for partial refunds of materials and service fees, a student withdrawing from college must file an application with the Business Office not later than 14 days following the day of the term when instruction begins: and provided, further, that the amount of $2 shall be retained to cover the cost of registration.

Nonresident and foreign student tuition:

Tuition paid for a course scheduled to continue for an entire semester may be refunded in accordance with the following schedule if application therefor is received by the Business Office within the following time limits:

Time limit	*Amount of refund*
(1) Before or during the first week of the semester	100 percent of fee
(2) During the second week of the semester	90 percent of fee
(3) During the third week of the semester	70 percent of fee
(4) During the fourth week of the semester	50 percent of fee
(5) During the fifth week of the semester	30 percent of fee
(6) During the sixth week of the semester	20 percent of fee

Parking fee:

This schedule of refunds refers to calendar days, commencing on the date of the term when instruction begins:

Nonreserved space per semester:

Period	*Amount of refund*
1-30 days	75 percent of fee
31-60 days	50 percent of fee
61-90 days	25 percent of fee
91-end of term	None

The late registration fee is not refundable.
The Business Office should be consulted for further refund details.

SUMMER SESSION FEES

Tuition, each session	(per unit)	$11.50
Activity fee (required):		
Term I		2.00
Parking fees:		
Nonreserved spaces:		
Six-week session		5.00
Other sessions of one week or more	(per week)	1.00

EXTENSION COURSE FEES

Lecture or discussion course	(per unit)	10.00
Activity course	(per unit)	13.00
Science laboratory course	(per unit)	20.00

EXEMPTIONS

Students under Public Law 16, 346, 894, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

VETERAN ALLOWANCES

Allowances for subsistence begin on the date the Business Office clears for payment of fees, or effective date of VA authorization, whichever is later, except that veterans clearing the Business Office on the regular registration days will be certified for subsistence beginning with the first day of the registration schedule.

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2930 West Imperial Highway
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AND DEPARTMENTS

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COLLEGE OF ARTS AND SCIENCES	Sidney L. Gulick
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Health Education Department	Ralph M. Grawunder
Men's Physical Education Department	Paul Governali
Women's Physical Education Department	Margaret Murphy
Recreation Department	William L. Terry (acting)

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DEPARTMENTS (CONTINUED)

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Journalism Department	James L. Julian
Political Science Department	W. Richard Bigger
Sociology-Anthropology Department	Aubrey Wendling
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THE CALIFORNIA STATE COLLEGES

The California State Colleges are a unique development of the democratic concept of tuition-free public higher education for all qualified students.

Spanning the state from Humboldt County in the north to San Diego in the south, the 16 campuses of the California State Colleges (with two additional campuses in the planning stage) represent the largest system of public higher education in the Western Hemisphere and one of the largest in the world. Current enrollment is some 118,000 full and part-time students. The faculty and administrative staff numbers some 7,000.

The individual colleges, each with a geographic, curricular and academic character of its own, offer a solid basic program in the liberal arts. Beyond this, each college is noted for its individuality in academic emphasis which makes for a diversified system. Course offerings leading to the bachelor's and master's degree are designed to satisfy existing student interests and to serve the technical and professional manpower requirements of the state.

The California State Colleges are dedicated to rigorous academic standards. Constant striving for academic excellence is at the heart of the system. Each faculty within the system is a "teaching faculty" whose primary responsibility is the instructional process on the teacher-student level, with appropriate recognition of the necessary and constructive role of research in any institution of higher education.

Responsibility for the California State Colleges is vested in the Board of Trustees, which is appointed by the Governor, and the Board's administrative arm, the Chancellor. The Trustees and the Chancellor set broad policy for the colleges while delegating considerable independent responsibility for implementation at the college level.

Although the oldest of the colleges, San Jose State College, dates back a century, the California State College system under an independent Board of Trustees was created by the Donahoe Act of 1960. Formerly, the colleges were under the jurisdiction of the State Board of Education.

Today, the California State Colleges are in a particularly dynamic period of their development. Prior to World War II, there were seven State Colleges with a peak total enrollment of some 13,000. Since 1947, nine new campuses have been developed and two more are scheduled to begin operation within the next three years. Enrollment in the system is expected to reach 180,000 by 1970.

STATE COLLEGE CAMPUSES

Alameda County State College 22300 Foothill Boulevard	Hayward
California State Polytechnic College	
San Luis Obispo Campus	San Luis Obispo
Kellogg Campus	Pomona
Chico State College First and Normal Streets	Chico
Fresno State College Shaw and Cedar Avenues	Fresno
Bakersfield Residence Center Bakersfield College Campus	Bakersfield
Humboldt State College	Arcata
Long Beach State College 6101 E. Seventh Street	Long Beach
Los Angeles State College of Applied Arts and Sciences 5151 State College Drive	Los Angeles
Orange State College 800 North State College Blvd.	Fullerton
Sacramento State College 6000 J Street	Sacramento
San Bernardino-Riverside State College (Planning stage) Mailing address: 532 Mountain View Ave.	San Bernardino
San Diego State College 5402 College Avenue	San Diego
Imperial Valley Campus Highway 111 and Ira Aten Road (P. O. Box 1049, El Centro)	Imperial
San Fernando Valley State College 18111 Nordhoff Street	Northridge
San Francisco State College 1600 Holloway Avenue	San Francisco
San Jose State College 125 South 7th Street	San Jose
Sonoma State College 265 College View Drive (temporary location)	Cotati
South Bay State College (Planning stage) Mailing address: 2930 West Imperial Highway	Inglewood
Stanislaus State College District Fair Grounds (temporary location) (P. O. Box 1000, Turlock)	Turlock

THE COLLEGE

THE COLLEGE
SPECIAL PROGRAMS AND SERVICES
STUDENT SERVICES, ACTIVITIES, AND HOUSING

THE COLLEGE

FUNCTIONS OF THE COLLEGE

The primary function of the California state colleges is the provision of instruction for undergraduate students and graduate students, through the bachelor's and master's degrees, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. The doctoral degree may be awarded jointly with the University of California.

The programs at San Diego State are designed to aid the student to develop his powers of critical, independent thought and to become aware of the main streams of our Nation's cultural, social, and scientific traditions; to inform him of the political ideas and ideals that have built our Democracy and to stimulate in him an interest in participation in civic life; and to equip him with the knowledge and skills necessary to meet the needs of California and the Nation for competence and leadership in a number of vocational and professional fields.

To achieve these purposes San Diego State College has developed and is improving offerings as follows:

1. Student personnel services to assist the individual student to plan his educational program and to make reasonable progress toward the attainment of immediate and long range goals.
2. General and liberal education for students who take work which leads toward the bachelor's degree or to the higher professions through graduate work.
3. Undergraduate and graduate curricula in teacher education for those students who plan to teach, supervise or administer at all levels in California's public schools.
4. Preprofessional curricula for fields such as medicine, dentistry, theology, and law.
5. Four-year curricula in such fields as business, industry, engineering, governmental services, homemaking, and social service.
6. Extension courses in appropriate fields.
7. Courses at the graduate level designed to lead to the M.A. and M.S. degrees in a variety of fields and to the doctor's degree soon to be issued jointly with the University of California.

THE COLLEGE

San Diego State College was founded in 1897, opening as the two-year San Diego Normal School under a local board of trustees. It became the four-year San Diego State Teacher's College in 1921 under the State Board of Education, and in 1935 the liberal arts San Diego State College. In 1960, as one of the 16 state colleges of California, it came under administration of a Board of Trustees, with a chancellor as chief administrative officer of the state colleges, each individual college having its own president.

During the first year of its existence, the college, with a faculty of seven and a student enrollment of 91, occupied temporary quarters in downtown San Diego. The following year it moved to a new campus on University Heights in a central area of the city. By 1931, growth of the college made necessary another move, this time to its permanent campus of several hundred acres in the eastern part of San Diego.

LOCATION AND BUILDINGS

The campus is situated 12 miles from beach resorts and within a short drive of mountain and desert recreational sites. It lies one mile north of the city's principal east-west thoroughfare, El Cajon Boulevard, and just south of Highway 80, on College Avenue.

The original group of buildings to be erected on the campus is of Spanish colonial architecture, so characteristic of early California. Campus traditions reflect this culture and that of the earlier Aztecs south of the border. The students call themselves The Aztecs; their yearbook is *Del Sudoeste;* their newspaper, *The Daily Aztec;* and they live on Montezuma Mesa, where a black marble statue of the great Aztec chief, Montezuma, stands in The Quad as their guardian of the red and black.

During its recent years of explosive growth, San Diego State has enjoyed the support of a community alert to its educational needs. To serve the rapidly expanding student population, which now numbers over 14,000, many new buildings of modern design have been added. The institution now has classrooms, laboratories, and other facilities covering a million and a quarter square feet. Buildings include the following: Administration, Business Administration, Chemistry-Geology, Campus Laboratory School, Education, Engineering, Fine Arts, Home Economics, Home Management Residence, Humanities-Social Sciences, Industrial Arts, Library, Life Sciences, Little Theatre, Music, Peterson Gymnasium (men), Physics, Physics-Astronomy, Physical Education, Physical Sciences, Speech Arts, Women's Physical Education, The Commons (cafeteria), Aztec Shops Bookstore, and Health Service; also included are the Greek Bowl, Track Field, Aztec Bowl (stadium), Scripps Cottage (student lounge and outdoor recreational center), and a faculty lounge and cafeteria.

ENVIRONMENT

In the San Diego area are many cultural opportunities for the study of art, music, literature, and science. Many of these advantages are to be found as the heritage resulting from the expositions of 1915-1916 and 1935-1936, including the buildings themselves in Balboa Park, which portray the best types of Spanish colonial art and architecture. Housed in these buildings are the Fine Arts Gallery, the Museum of Man with its exhibits in anthropology, natural history and American archaeology, and the Old Globe Theatre, renowned not only as an architectural likeness of the Shakespearian counterpart, but also for the excellence of its productions in contemporary drama and the annual Summer Shakespearian Festival. Noteworthy are the Outdoor Organ, horticultural gardens, and Balboa Bowl, locale for the Starlight Opera and Summer Symphony. Also in Balboa Park and unsurpassed in its natural setting is the world-famous San Diego Zoo with its latest and most delightful feature, the Children's Zoo.

Scripps Institution of Oceanography at La Jolla, which is part of the University of California at San Diego, offers in the biological sciences opportunity for cooperative studies; in the physical sciences, the graduate school of Science and Engineering of this same institution provides outstanding facilities to complement those already existing locally in the Naval Electronics Laboratory and the great aeronautical and missile industries. Other institutions located in this area include three junior colleges, San Diego City College, which from 1921 to 1947 was part of State College, Grossmont College, and Southwestern College; California Western University (Protestant) at Point Loma, with a liberal arts program and a School of Law; and the University of San Diego (Catholic) at Alcala Park, with its College for Men, College for Women, and School of Law.

FACULTY

The college faculty numbers over 750 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished not only in terms of formal education, but also represents a wide variety of practical experience in business, industry, and the teaching profession. Both past and recent contributions to publications and research are extensive and impressive. For listings and further details see the Faculty Directory.

ACCREDITATION

San Diego State College is a member of the following educational associations:
Western College Association
American Association of Colleges for Teacher Education
American Association of Collegiate Schools of Business
National Association of Schools of Music (associate member)
National League for Nursing
Western Association of Graduate Schools
Council of Graduate Schools in the United States

Through membership in these associations, San Diego State College is fully accredited. It is also accredited by the National Council for Accreditation of Teacher Education and by the California State Board of Education. It is on the approved list of the American Chemical Society and is approved by the Veterans Administration for the education of veterans.

DEGREES AND CERTIFICATES

San Diego State College offers the following degrees and certificates:

Degrees	*Certificates (nondegree)*
Bachelor of Arts	Certificate in Public Administration
Bachelor of Science	
Bachelor of Education (or Vocational Education)	*Offered in Extension Program*
Master of Arts	Certificate in Industrial Management
Master of Science	Certificate in Office Management

TYPES OF CURRICULA OFFERED

San Diego State offers the following types of curricula:

UNDERGRADUATE CURRICULA. Undergraduate curricula provide the following opportunities for study:

(1) In liberal arts and sciences, the College of Arts and Sciences offers curricula in the academic major fields, leading to the bachelor of arts degree in liberal arts and sciences.

(2) In applied arts and sciences, the General Programs offer curricula in major fields leading to the bachelor of science or bachelor of arts degree.

(3) In the professional curricula, the Division of Business Administration offers the bachelor of science degree in nine major fields; the Division of Engineering offers the bachelor of science degree in engineering, with specialization available in four areas; and the Division of Education offers curricula in teacher education, leading to a bachelor's degree and teaching credentials at all levels of public school teaching.

(4) Preprofessional and Certificate Programs. Preprofessional programs are offered in predentistry, prelegal, and premedical. Nondegree certificate programs are offered in industrial management, office management, and public administration.

GRADUATE CURRICULA. The Graduate Division offers curricula leading to the master of arts or master of science degree. The doctoral degree may soon be awarded jointly with the University of California.

ACADEMIC YEAR

San Diego State operates on the semester plan. The academic year, which consists of two semesters of 18 weeks each, begins in September and ends in June. The academic year is defined in the State Administrative Code, Chapter 5, Section 42800, as follows: "The beginning date of the academic year of the college shall be Monday of the week preceding the week that class instruction is scheduled to begin in the regular fall session, and the ending date shall be the second calendar day following the last day that final examinations are regularly scheduled for the following spring semester." Dates for the current academic year are carried in the calendar in this catalog.

PUBLICATIONS

The *General Catalog*, which is published annually in April, may be obtained free of charge by writing to the Registrar. The catalog carries information on admissions, fees and tuition, programs and degrees, courses, scholarships, residence halls, student services and activities, and a faculty directory.

The *Graduate Bulletin*, issued in April of each year, is available without cost to the applicant upon request made to the Graduate Office. The bulletin gives complete information on all graduate programs.

The *Summer Sessions Bulletin*, issued each March, carries information on the ensuing summer terms. The bulletin includes an application form, information on admission and registration, fees, living accommodations in residence halls, courses, institutes, workshops, study tours, and recreational opportunities during the summer in San Diego. Write to the Summer Sessions Office for a free bulletin.

The *Bulletin for Classes Meeting at 4 O'Clock or Later* and the *Extension Courses Bulletin* are issued prior to each semester by the Office of Extended Services. These bulletins give information on courses and programs to be offered in the next semester. They will be mailed upon request without charge by the Office of Extended Services.

For a *Bulletin of the Imperial Valley Campus*, write to the Director, Imperial Valley Campus, P.O. Box 1049, El Centro, California. This bulletin carries information on admissions, courses, and programs. It is available prior to the opening of each semester and will be mailed free of charge upon request.

The *Class Schedule and Instructions for Registration* is published prior to the opening of each semester and may be purchased at the Aztec Shops Bookstore on the campus. The current price is 25¢, subject to change. An additional charge of ten cents is made for mailing. Address requests to the Bookstore.

The Daily Aztec, a student newspaper, is issued daily in regular semesters and once a week in Term I Summer Session. The cost of the paper is included in the student activity fee. *Del Sudoeste*, the campus yearbook, is published at the close of the spring semester. It is sold at the Bookstore or may be obtained at a reduced price when ordered in advance. A *Student Handbook* is published at the beginning of the academic year and is distributed free of charge to new students at time of registration or may be obtained from the Office of the Dean of Activities. It contains information on scholastic and social life, services offered, customs of the college, and other material designed to encourage the student to participate fully in the life of the college. The *Alumni Quarterly* is published by the Alumni Association and distributed to its members.

Special bulletins and brochures are issued at irregular intervals by the various divisions and offices of the college. Information on these special publications which may be currently available may be obtained by writing to the Office of Publications and Public Relations.

SPECIAL PROGRAMS
AND SERVICES

SPECIAL PROGRAMS

In addition to the undergraduate and graduate programs available on the campus during the regular sessions, the following special programs, designed to meet the needs of special groups of students, are also offered: The Imperial Valley Campus Program, the Program for Classes Meeting at 4 O'Clock or Later, Summer Sessions, Extension Courses Program, Teacher Education, and Veterans' Education.

IMPERIAL VALLEY CAMPUS

LOCATION AND FUNCTIONS

The Imperial Valley Campus of San Diego State is located at the corner of State Highway 111 and Ira Aten Road, approximately six miles east of El Centro, California. The campus was established in September, 1959, as one of several off-campus centers authorized for the state colleges of California. The program at this campus is an integral part of San Diego State and is under the direction of the Dean of Education and Extended Services. The curriculum includes the recommended program of courses leading to a bachelor's degree and elementary teaching credential. Counseling, testing, and admission of students are provided by the Director and a full-time and part-time instructional staff. In addition to the regular program, the campus also assists in the administration of extension courses for the Southeastern California area when courses are offered in subjects other than in elementary education. The campus operates only from September until June, covering the time when climatic living conditions of the desert are at their best.

PROGRAM

The program at the Imperial Valley Campus is restricted to upper division courses applicable to a bachelor's degree and elementary teaching credential. The program leading to credentials currently offered will be modified accordingly when the new credential program becomes effective on July 1, 1963. Programs now in operation are described in this catalog under Professional Curricula in Education. The new credential program will be described in a supplement to be issued during the spring semester, 1963. Write to the Registrar, San Diego State College, for a free copy of the supplement: Teacher Education Curricula, 1963-1964.

The Imperial Valley Campus is designed to serve the needs of the following: (1) persons now teaching, but who would like to complete requirements for a bachelor's degree and elementary teaching credential, (2) junior college graduates, (3) transfer students who have completed two or more years of college work, (4) inservice teachers holding provisional credentials who desire to become fully credentialed, and (5) college graduates who wish to complete the requirements for a regular elementary teaching credential.

Available to students needing certain lower division college work in connection with their work at this campus is the Imperial Valley College, a public junior college offering the first two years of college work.

In addition to the regular student teaching program, the Imperial Valley Campus, through the cooperation of the Imperial County Superintendent of Schools and participating school districts, offers an Intern Teacher Program leading to the degree and credential. Under this program qualified students are selected to participate in a combination teaching-college situation for which they receive college credit and three-fourths salary.

INFORMATION

Information on admission, registration, programs, and classes may be obtained by writing the Director, Imperial Valley Campus, P.O. Box 1049, El Centro, California. Telephone Elgin 2-5872 or Flanders 5-2322.

OFFICES AND CLASSROOMS

The Imperial Valley Campus is located on the new campus of the Imperial Valley College, a public junior college. All buildings, including offices and classrooms, are equipped with refrigeration air conditioning.

FACULTY

The full-time faculty members and many of the part-time faculty are regular members of the San Diego State instructional staff. This group is augmented by part-time faculty selected from qualified and competent Imperial Valley educators.

LIBRARY

The Imperial Valley Campus library is housed separately on the new campus site. It contains over 6000 books, 1500 pamphlets, and 65 periodicals. Books and reference materials are also available to students and faculty from the Imperial Valley College library which is also located on the campus. Additional loan privileges are available to students through the State College library in San Diego, the Imperial County public libraries, school libraries, and the Imperial County Schools Curriculum Library.

AUDIO-VISUAL EQUIPMENT

A basic collection of audio-visual equipment is available for classroom use. Films and other instructional materials are available to the staff and students through the Audio-Visual Department of the Imperial County Education Center. Additional materials and films are also obtained from the San Diego State Audio-Visual Services. Films may also be rented from outside sources as needed.

STUDENT CENTER AND BOOKSTORE

Food services are available at the new student center building on the campus. Books and other materials may be purchased at the Imperial Valley College Bookstore.

PLACEMENT AND EMPLOYMENT

The college provides a centralized placement service in cooperation with the Division of Education. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Staff members maintain contact with schools for teacher placement.

FINANCIAL ASSISTANCE

Loans and scholarships available at San Diego State and the Imperial Valley Campus are described in the back of this catalog. Consideration is usually given to students on the basis of scholastic attainment, financial need, character, and promise. National Defense Education Act Loans are also available, as well as the usual various veteran benefits.

CLASSES MEETING AT FOUR O'CLOCK OR LATER

In order to meet the needs of adults in the community for work on the college level, some courses are scheduled to begin at four o'clock or later. These include both undergraduate and graduate courses and carry full college credit. Classes offered at this time are part of the regular college offerings and are taught by faculty of the college.

Students enrolling in these classes must be fully matriculated students who have met all admission requirements of the college, including the filing of an official application for admission, the filing of complete official transcripts from other schools and colleges, and in the case of undergraduates, the completion of required tests for admission.

A bulletin on Classes Meeting at 4 O'clock or Later, describing current offerings, eligibility for admission, and procedures for registration, is issued each semester and may be obtained upon request from the Extended Services Office. Applications of new undergraduate students for admission to the college must be filed with the Office of Admissions before expiration of the deadline date for filing applications. This date is carried in the calendar of this catalog.

SUMMER SESSIONS PROGRAM

San Diego State conducts an intersession and two summer sessions which offer credit applicable to graduation and residence requirements. During the Intersession of one or two weeks, from one to two units of credit may be earned; during the six-week Term I Summer Session, six units of academic credit may be earned; and during the three-week Term II Summer Session, three units may be earned. The tuition fee for summer session work is based upon cost per semester unit. (Refer to the section of this catalog on Schedule of Fees for information on fees.) Information concerning course offerings, special workshops, and requirements for admission may be obtained by communicating with the Summer Sessions Office. A *Summer Sessions Bulletin* is available during the month of March and will be mailed free of charge upon request.

EXTENSION COURSES PROGRAM

In order to serve more adequately the needs of the community, the college cooperates with off-campus organizations and groups in arranging extension classes in response to expressed needs when the group is sufficiently large to finance the instruction. Offerings are made each semester in a number of departments including education, business administration, and the arts and sciences. Classes may be organized at various points within San Diego and Imperial Counties. A minimum of 15 to 20 students is usually required in order to establish a class. The usual class carries three units of credit and meets once a week, either in the late afternoon or evening. These courses are listed in a special *Extension Courses Bulletin* published each semester. Refer to the section of this catalog on Schedule of Fees for information on fees.

For limitations on extension credit, see the section of this catalog on Credit for Extension Courses. Refer to the index for page number. For information on organization of classes, current offerings, and eligibility for registration, communicate with the Extended Services Office.

OVERSEAS PROGRAMS

For their upper division and graduate students, the California State Colleges cooperate with foreign universities to offer academic programs in France, Germany, Spain, and Formosa. Qualified students, with adequate facility in the foreign language and with demonstrated scholarly aptitude, may choose among a wide variety of courses in the host university. Costs are held to a minimum. For further information, address the Office of the Dean of Arts and Sciences, San Diego State College.

TEACHER EDUCATION PROGRAM

The college maintains a modern elementary school on the campus where it has developed an extensive program for the education of elementary school teachers. The classroom-laboratory plan which calls for the use of workrooms, the library, and shops, affords unusual opportunities for the induction of students into teaching. By arrangement with the San Diego city and county schools, observation, participation, and directed teaching are provided in the elementary and secondary schools and in the junior college.

VETERANS' EDUCATION

The college has been approved by various accrediting agencies to offer courses for veterans leading to the baccalaureate in numerous fields and to the master's degree and various teaching credentials. In connection with the Personnel Services Center, a veterans' office is maintained on the campus to facilitate registration, aid in the establishment of benefits, afford special counseling services, and serve as an information center.

SERVICES

LIBRARY

The library services and resources of the college are noteworthy. The book collection contains over 258,000 volumes; and more than 2,400 current periodicals are received. The library is a depository for United States government publications and California state government publications. Library materials are housed in a building with 120,000 square feet of floor space with adjoining seating space for 2,000 readers.

Nineteen professionally trained reference librarians assist students and faculty in their reading, study, and research.

The Campus Laboratory School library, a collection of 20,400 volumes carefully selected for the needs of elementary school pupils, with ideal school library reading room furniture and equipment, makes an outstanding contribution to the teacher education program.

RESEARCH BUREAUS

BUREAU OF EDUCATIONAL RESEARCH

The Bureau of Educational Research, within the Division of Education, is administered by a Coordinator and his assistant. The objective of the bureau is to improve the quality of education through research by (1) fostering research on the part of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and techniques, and (4) engaging in the dissemination of information about education.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the Division of Business Administration. Operationally, it is a part of the Division of Business Administration, with a director and an editor. Fiscal matters are coordinated through the San Diego State College Foundation. The principal objectives of the bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) compile local and regional data; (5) publish the results of bureau research investigations and aid the faculty in publication of their research. Graduate students are encouraged to make use of bureau facilities. The Bureau is a member of the Associated University Bureaus of Business and Economic Research.

CENTER FOR SURVEY RESEARCH

The Center for Survey Research has been established to encourage nonprofit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations, and to do field work on a local, state, or national basis. Faculty members who wish to submit applications for off-campus support in survey research in the name of the Center may do so, upon approval of the project by the Center's Advisory Committee. The Center is administered by a Director.

ECONOMICS RESEARCH CENTER

Calculating machines, drafting equipment, and a specialized collection of research materials are located in the Economics Research Center in the Humanities-Social Sciences Building. These research facilities are available to advanced students and faculty members in all fields. The regular faculty seminars of the Economics Department, the meetings of the local chapter of Order of Artus, and special economics conferences are held in this center.

INSTITUTE OF LABOR ECONOMICS

The Institute of Labor Economics is an activity of the Economics Department with its administration under a director. The Institute, located in the Economics Research Center, provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College. It is organized to conduct research on a nonprofit basis into community and governmental problems of a public and/or administrative nature. The institute is staffed by members of the faculty of San Diego State College and operates under the advisory supervision of a board appointed by the president of the college. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes and research centers of the college. Administration of the institute is under a director.

COMPUTER CENTER

The College Computer Center is an adjunct to the instructional programs of the college, similar to the Library. Its purpose is to achieve an integration with the various curricula so that ultimately the student or faculty member who has need for the computer will utilize the facility as readily as one now draws books from the Library. The physical equipment, which is leased from the IBM corporation, consists of a Model 1620 Computer with the necessary peripheral equipment to insure operation of the computer in the fields of data processing and scientific computation. Courses are available for training in use of the computer and more informal demonstrations are conducted to assist faculty and students in becoming familiar with computer functions.

SAN DIEGO STATE COLLEGE PRESS

During 1962, San Diego State became the first of the California state colleges to initiate a college press, which operates under supervision of a publications board composed of representatives from each of the 10 college divisions. Financial assistance was initially obtained from the local chapters of the California State Employees' Association and the Association of California State College Professors.

The first publication issued by the press was a manuscript entitled "John Wyclif: Radical Dissenter", by Dr. Edward A. Block. It is expected that further important faculty-sponsored research reports, community studies, documents, and literary articles will be published by the college press.

SPEECH CORRECTION CLINIC

A speech and hearing clinic in which college students are trained in the application of speech correction techniques, audiometry, and language development for the hard of hearing and deaf is held throughout the school year and in Summer Session I. The clinic admits those with speech and hearing problems, ages three to adult. Because of limitations in staff, not all who apply can be admitted. Cost of materials not to exceed $1 must be met by parent or individual concerned. Parents who enroll a child in the clinic may enroll in the extension course, Speech Arts X-175, The Role of Parents in Problems of Speech Corretcion (2 units).

AUDIO-VISUAL SERVICES

The Audio-Visual Services Center provides projection, audio, photographic, and graphic services to all instructional areas of the college. Materials are purchased, rented, or borrowed from all over the United States and abroad. Facilities, which are of the finest, are housed in a center designed especially for use in this college. Highly trained personnel are available for service and consultation. Many buildings are equipped for closed-circuit television of programs originating on the campus and produced in studios staffed by advanced students in the Radio and Television Broadcasting production classes.

STUDENT SERVICES
ACTIVITIES, AND HOUSING

PERSONNEL SERVICES CENTER

The Personnel Services Center is made up of the Student Counseling Office, Test Office, and Veterans Office. The function of the Center is to help students gain the greatest benefit from their college experience through counseling, testing, and related personnel services. A staff of counselors is available to students who wish help in the solution of problems of a personal, social, academic, or occupational nature.

The program of student advising is coordinated through the Center. Students wishing to set up general majors or to change from one major to another do so in the Personnel Services Center.

HEALTH SERVICE

As a part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These health services are administered under the direction of a physician who is assisted by several part-time physician specialists and a full-time staff, and are available to the students when school is in regular session for consultation, treatment of minor physical difficulties, emergencies, and counsel as to additional proper procedures. Full-time nurses are also on duty when school is in regular session. During the weeks the college is in session, students may arrange appointments with specialists during the hours these specialists are available at the Student Health Service. A student must be currently enrolled for seven or more units of credit to be eligible for other than emergency treatment.

As part of the regular admission procedure, a health statement is required of each student. A form is furnished prior to registration for the purpose of recording the results of a physical examination done by the student's private physician. The physical examination is important as it serves as an aid in compiling a complete health record. Careful attention is given to students undergoing private remedial treatment and those for whom a modification of study load or limited participation in physical activities seems advisable. A follow-up procedure is in effect for the student who has been urged to consult his family physician for correction of defects discovered during the examination.

Current physical examinations are required and provided for all teacher education students at the time of admission to and graduation from the various educational credential programs. Physical examinations are conducted by the Health Service for only those credential candidates who are applying for a credential through the college, screened by the college. Physical examinations are also required before students are authorized to participate in the organized programs of intramural recreation or intercollegiate athletics.

A student health insurance program, available to those who carry seven or more units, is currently in effect. This insurance, which gives coverage for hospitalization and specified medical services for a six-month period, may be purchased at the time of registration. The insurance policy for the second six-month period covers the summer months for those students who continue in the succeeding fall program. Refunds on a prorated basis may be made to those students who are graduating seniors, or to those individuals who drop out of school during the period covered by the insurance policy.

PLACEMENT CENTER

The college provides a centralized placement service in cooperation with the various departments of the college. Students are aided in securing part-time and full-time positions and in obtaining information concerning occupational trends. Liaison is maintained with the Personnel Services Center on matters relating to senior vocational counseling. Staff members maintain constant contact with schools, businesses, and industries. Seniors and graduate students should contact the Placement Center early in the year in which they expect to receive degrees or credentials.

Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week. Students are strongly advised to take this into consideration before accepting any part-time job.

STATE VOCATIONAL REHABILITATION

Assistance to certain students having physical handicaps or limitations may be available through the Bureau of Vocational Rehabilitation, California State Department of Education. Services available include diagnosis, counseling and guidance, psychological testing, provision of fees, books, and supplies, subsistence and transportation allowances. Restoration services to reduce or remove disabilities may also be provided and can include medical and psychiatric treatment, artificial appliances, hospitalization and allied therapies. Applicants must be residents of California for one year and have a significant disability which interferes with employment. Information is obtainable at the agency offices, New State Office Building, 1350 Front Street, Room 4053, San Diego.

IMPROVEMENT OF WRITING COMPETENCY

Standard English, free from flagrant errors in grammar and spelling, is required on written assignments throughout the college. To help students attain a reasonable proficiency, the English Department offers several courses in composition, beginning with the freshman year. Additional assistance is provided by the Reading-Writing Improvement Center. Passing of the Writing Competency test or satisfactory completion of designated courses or remedial programs is a requirement for graduation. This program is under the supervision of the College Committee on English.

READING AND WRITING LABORATORIES

A Reading Laboratory and a Writing Laboratory are maintained by the English Department. These laboratories offer a semitutorial service to those wishing to improve reading or writing ability, or secure individual help with study problems or writing projects, either remedial or advanced. The service is open to all students at any level of college work. To obtain this service the student enrolls in the laboratory in the same manner as he does in any course. The laboratory course carries no college credit.

STUDENT ACTIVITIES PROGRAM

A rich field of extracurricular activities is made possible through the Associated Students. The *Student Handbook,* available at the time of registration, gives information concerning the nature and scope of these opportunities. During the past college year, six service organizations, 13 national honorary societies, five national professional fraternities, one local organization, 40 departmental organizations, 14 national social fraternities, 11 national sororities, eight national recognition societies, seven recreational organizations, 15 religious organizations, and 14 specal interest organizations were officially recognized on the campus. Full programs of intercollegiate athletics, music, newspaper and magazine production, radio, TV and theater production are maintained. Inquiries regarding fraternity or sorority rushing should be addressed to the Inter-fraternity Council or to Panhellenic, San Diego State College. Students are urged to select extracurricular activities carefully in order to receive optimum benefit from group experiences and to maintain continuous records of good scholarship. The Office of the Dean of Activities is open to students desiring advice and assistance in planning appropriate activity programs.

ALUMNI ASSOCIATION

The Alumni Association of San Diego State has as its major purpose the continuation of interests by students, faculty, and the community in the college. Working cooperatively with appointed committees, the association participates in Homecoming and Founders Week as well as other campus events. The official publication of the association is the *Alumni Quarterly* which distributes to its members important news relating to the expanding college scene. Information regarding alumni affairs may be secured from the office of the Dean of Students. Membership in the Alumni Association is open to former students of the college who were in regular attendance for one or more semesters. Membership is also open to past or present members of the faculty.

FINANCIAL AID, LOANS, AND SCHOLARSHIPS

Financial aid, loans and scholarships available at San Diego State are described in the section of the catalog on Addenda.

RESIDENCE HALLS

Available to single men and women students are five fireproof, brick, three-story residence halls. These buildings are constructed of heavy masonry inner walls, solid doors, acoustical tile ceilings; all factors that keep noise to a minimum. Air conditioning throughout the entire building and individual thermostats in student rooms, coupled with pleasant colors and comfortable furniture, provide a harmonious area conducive to a most efficient type of studying. Requests for roommates, if desired in double rooms, will be honored. To insure a reservation in the residence halls, applications should be sent to the office of the Director of Housing, San Diego State.

Meals for all residence hall students are provided and required in the college cafeteria with the exception of those students twenty-one years of age or over who may wish to have room only. Meals are not served, however, during the Christmas recess, the Easter recess, or the recess between semesters. Only two meals are served on Saturday and Sunday.

For 1963-1964 the total charge per student per semester for campus board and room will be approximately $405, payable a semester in advance or on an installment plan that entails a $6 service charge. Parking and health service benefits, including hospitalization, are included in this total. An additional $20 security deposit is required, but is refundable at the close of the college year.

A waiting list for students seeking residence hall assignments is maintained in the office of the Director of Housing. A deposit of $74 is required at the time of Residence Hall application and is refundable to a period not later than 30 days before the first day of college registration for the ensuing term.

The college reserves the right to require that unmarried men and women students under the age of 21 who are not living with a parent or guardian occupy campus residence halls or other college approved dwellings. All unmarried minor freshmen students not living with a parent or guardian are required to reside in the college residence halls or other approved off-campus housing facilities, unless permission to live elsewhere is granted by the college.

OFF-CAMPUS HOUSING

San Diego State is located in a residential district of apartment houses and small homes. The campus is about 10 miles east of the downtown central business section of San Diego and five or six miles west of the neighboring cities of La Mesa and El Cajon. Information on housing facilities, as well as on residence halls, may be obtained from the Director of Housing, San Diego State College.

EATING FACILITIES

During the time college is in session, a modern cafeteria is operated on the campus, serving breakfast, lunch, and dinner at modest cost per meal. Restaurant facilities off-campus are not generally available in the immediate vicinity of the campus, with a few exceptions, but many such places are available within one mile of the campus.

TRANSPORTATION

Bus line transportation to the college, connecting with all areas of the metropolitan area, is available daily, except Sundays and holidays. Route S operates north-south on College Avenue, between the campus and the College Grove Shopping Center at Ryan Road. Transfer points for connecting east-west bus lines are at El Cajon Boulevard with Route E, at University Avenue with Route 7, and at Streamview Drive with Route 5.

PARKING

On-campus parking areas are provided for visitors, students, faculty and staff. Refer to the map of the Campus in this catalog for information on location of parking areas and to the section of the catalog on Schedule of Fees for information on parking fees. The traffic headquarters office is located at the entrance to the Administration Building.

COST OF LIVING

Each student should plan his budget based upon individual needs. The wide range of tastes and financial resources of students in a college with an enrollment of more than 14,000 makes it difficult to give specific information on the cost of going to college. At San Diego State it is possible to live simply and participate moderately in college life and activities on a modest budget. A table of estimated costs is given below as a guide to students in planning the college budget.

ESTIMATED EXPENSES FOR ONE SEMESTER

Minimum cost for living on campus

Materials, service, student activity fee	$46
(Nonresident tuition of $250, or foreign student tuition of $127.50, is in addition to above fee)	
Room, board, health services, parking	405
Books	40
Clothing	60
Laundry and cleaning	50
Recreation	75
	$676

Minimum cost for living at home

Materials, service, student activity fee	$46
Transportation	60
Lunches	75
Books	40
Parking	13
Clothing	60
Laundry and cleaning	50
Recreation	75
	$419

ADMISSION AND REGISTRATION

ADMISSION

ADMISSION REQUIREMENTS

Admission requirements for the California State Colleges are stated in the California Administrative Code, Chapter 5, California State Colleges. These regulations are presented below.

APPLICATION FOR ADMISSION

FILING OF APPLICATIONS

Deadline for Filing Application. An application for admission to the college may be filed during the semester preceding the one in which the applicant expects to enroll. The last dates for filing applications are as follows:

For fall semester: July 15.

For spring semester: December 15.

Required Official Forms. The following official forms must be submitted to the Admissions Office:

(1) Application for admission or readmission, accompanied by a $5 application fee. Make check or money order payable to San Diego State College.

(Fee may be waived for readmission application if student was regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, unless such student was enrolled at another institution in a regular session subsequent to such previous semester.)

(2) Health history record

These forms may be obtained from the Admissions Office. Letters from applicants signifying intention to enroll will not be considered as applications for admission. The official forms must be filed.

FILING OF RECORDS

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

(1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).

(2) Transcripts from **EACH** college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transscripts **IN DUPLICATE,** if they plan to enter the master's degree program.

(3) Photostat or true copy of the military separation form DD-214 (or equivalent) if applicant has had active military service. (Not required of graduate students.)

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received by the college become the property of the college and *will not be released nor will copies be made.*

COMPLETION OF REQUIRED TESTS

Admissions Tests.

(1) *College Aptitude Test.* The American College Test (ACT) is required for matriculation of entering freshmen. Applicants should consult the high school counselor for dates and places where tests are given.

Transfer students are required to take a college aptitude test administered at this college. A test reservation card is filed with the application for admission. Refer to the calendar in this catalog for dates of the test.

(2) *Writing Competency Test.* This test must be taken before registration by all undergraduate students transferring to this college with 45 units or more of advanced standing. Passing this test or satisfactory completion of designated courses or remedial programs is a graduation requirement for all students. Since this test is scheduled to be given at the same time as the college aptitude test, a separate reservation for the test need not be made.

(3) *English Test for Foreign Students.* For admission purposes, all entering foreign students whose native language is not English must take this test. The test will be scheduled by the counselor for foreign students. This test does not take the place of the writing competency test required for graduation.

Teacher Education Tests. These tests are required of all candidates for teaching credentials. Refer to Admission to Teacher Education in the section of this catalog on Professional Curricula in Education, and to the calendar for additional information.

(1) *Fundamentals Test.* This test is required of all candidates for the general elementary and kindergarten-primary credentials before admission to teacher education. May be taken before registration by students transferring to this college with 15 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Elementary Education, Education Building.

(2) *General Culture Test.* This test is required of all candidates for any of the secondary school credentials before admission to teacher education. May be taken before registration by students transferring to this college with 45 units or more of advanced standing. May also be taken during the regular semester. Make a reservation for this test at the Office of Secondary Education, Education Building.

(3) *English Proficiency Test.* This test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is not given before registration. May be taken during the regular semester by students with 45 units or more of advanced standing. Obtain information and make test reservation at the Office of Secondary Education, Education Building.

(4) *Mathematics Competency Test.* A mathematics competency test is required of all candidates for any of the secondary school credentials before admission to teacher education. The test is the same test as the one given to clear the graduation requirement for competency in mathematics. Graduate students must make a reservation for this test at the Evaluations Office in the Administration Building.

Qualification Tests.

Mathematics Placement Examinations. Required of students before enrollment in any of the following courses: Mathematics 3, 4, 12, 21, 22, 40, 50; and Economics 2. These examinations may be taken before registration. Reservations for the examinations are not required. Refer to the calendar in this catalog for examination dates.

Graduate Aptitude Test. This test is required of all graduate students who intend to enroll in a master's degree program. May be taken before registration. Also given during the regular semester. Make reservations for this test at the Test Office, Administration Building. Refer to the Graduate Bulletin for full information and test dates.

LIMITATION OF ENROLLMENT

ADMINISTRATIVE CODE

40600. Limitation of Enrollment. Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Board of Trustees shall determine the number of students for whom there are available facilities and competent instructors at the college.

MATRICULATION

ADMINISTRATIVE CODE

40700. Matriculation. Any student enrolling in any semester or quarter other than summer session or extension or as an auditor without credit shall meet the standards for admission outlined in this subchapter.

NOTE: At this college, only fully matriculated students are accepted for enrollment in any regular semester. This includes auditors.

ADMISSION WITH FRESHMAN STANDING

ADMINISTRATIVE CODE

40800. High School Graduates. For admission to a state college, a high school graduate, or other applicant, must, as a minimum, meet one of the following:

(a) Have earned 14 or more semester grades of A or B (70 semester periods or 7 Carnegie units) on a five-point grading scale in subjects other than physical education, military science, and remedial courses during the last three years in high school, including at least 6 college preparatory subject grades.

College preparatory courses include one or more of the following fields:

(1) English, including speech, drama, and journalism, other than activity courses.
(2) Foreign languages.
(3) Mathematics.
(4) Natural sciences.
(5) Social sciences.

(b) Have earned 10 or more semester grades of A or B (50 semester periods or 5 Carnegie units) on a five-point grading scale in subjects other than physical education, military science, and remedial courses during the last three years in high school and have attained the thirtieth percentile on national college freshman norms of a standard college aptitude test.

An applicant may be admitted to a state college when, in the judgment of the appropriate college authorities, he has equivalent preparation to that in (a) or (b) above.

Change in Admission Requirements

In compliance with recommendations of the Master Plan for Higher Education in California, freshman admission requirements will be revised for the state colleges so that beginning in September, 1965, students eligible for admission will be selected from the upper one-third of high school graduates. New admission requirements will be announced at the earliest possible moment. Pending announcement of new admission requirements, students now in high school who plan to enter a California state college in 1965 may best be advised to complete a high school program generally considered to be college preparatory in nature.

HIGH SCHOOL PREPARATION

Students planning to enter college are urged to consult with their high school counselors in arranging a program that will adequately prepare for more advanced work at the college level in the field of major interest. The following general outline is suggested as a guide to students in selecting courses in preparation for college.

RECOMMENDED HIGH SCHOOL PROGRAM

Subjects	Freshman Year	Sophomore Year	Junior Year	Senior Year
ENGLISH (Four years recommended)	English	English		English
SOCIAL STUDIES (Three years recommended)			U.S. History	Civics
MATHEMATICS	Algebra	Geometry	Advanced Algebra for science majors; recommended for others	Advanced Mathematics for science majors
SCIENCE		Life science (Botany, Biology, or Physiology)	Chemistry (with laboratory)	Physics (with laboratory)
FOREIGN LANGUAGE (Three or four years in one language recommended)	Foreign language	Continue the same language	(a) Continue the same language or (b) Begin another language	(a) Recommend continuing same language or (b) Continue the second language
PHYSICAL EDUCATION	P. E.	P. E.	P. E.	P. E.
ELECTIVES	Recommended for all precollege students: typing, art, music, additional social studies. English; for science majors: slide rule, mechanical drawing. Students should enrich the high school program by selecting freely from courses in the fine arts, practical arts, and the humanities. Many students are availing themselves of the opportunity afforded in high school summer sessions to take courses which otherwise could not be included within the regular semesters.			

ADVANCED PLACEMENT EXAMINATIONS

San Diego State will grant advanced placement and advanced credit to high school students who have satisfactorily completed the Advanced Placement Tests prior to their enrollment at the college. A maximum of 15 semester units, with no more than three units in any one field, will be awarded for these examinations upon completion of one semester at this institution.

High school students who intend to participate in this program should indicate at the time they take the Advanced Placement Examinations that their test scores be sent to the college. To obtain credit or advanced placement, the student should obtain and file an application form in the office of the Dean of the College during the student's first registration at the college.

ADMISSION OF NON-HIGH SCHOOL GRADUATES

ADMINISTRATIVE CODE

40801. Adult Special Students. An applicant who has attained the age of 21 years and is not a high school graduate may be admitted to the state college as an adult special student provided that he demonstrates to the proper college authorities, ability to profit from college work.

ADMISSION WITH ADVANCED UNDERGRADUATE STANDING

An applicant must report all college work attempted (including extension and correspondence courses) no portion of which may be disregarded in transferring. An applicant disregarding this regulation will be subject to dismissal from the college.

ADMINISTRATIVE CODE

40901. Applicants Who Were Eligible for Admission With Freshman Standing. An applicant is eligible for admission to a state college with advanced undergraduate standing if he meets all of the following standards:

(a) At the time of his graduation from high school, he was eligible for admission with freshman standing in accordance with subsection (a) or (b) of Section 40800 (above).

(b) He has earned college credit in one or more accredited degree-granting colleges or universities and attained a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(c) He was in good standing at the last accredited college or university attended.

40902. General Applicants Who Were Not Eligible for Admission With Freshman Standing. An applicant who was ineligible for freshman admission under subsection (a) or (b) of Section 40800 (above) is eligible for admission with advanced undergraduate standing if he was in good standing at the last accredited college or university attended and meets all of the requirements set forth in either of the following subsections:

(a) He has earned in one or more accredited colleges or universities 60 semester units of college credit with a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(b) He has earned in one or more accredited colleges or universities 24 semester units of credit with a grade point average of 3.0 (grade of B on a five-point scale) or better in the total program attempted at such colleges or universities.

40903. Applicants With Particular Majors. An applicant who was ineligible for freshman admission under subsection (a) or (b) of Section 40800 (above) may be admitted if his major is such that 60 units of work appropriate to state college degree requirements in the particular major are not offered by the accredited degree-granted institution from which he seeks to transfer, and if he meets all of the following standards:

(a) He has earned college credit in one or more accredited degree-granting colleges or universities and attained a grade point average of 2.0 (grade of C on a five-point scale) or better in the total program attempted at such colleges or universities.

(b) He was in good standing at the last accredited college or university attended.

40904. Other Applicants. An applicant who does not meet the requirements set forth in Sections 40901, 40902, or 40903 is eligible for admission with advanced undergraduate standing on probation if in the opinion of the proper college authorities he can succeed in college.

40409. Junior College Credit. A maximum of 70 semester units earned in a junior college may be applied toward the degree, with the following limitations: (a) no upper division credit may be allowed for courses taken in a junior college; (b) no credit may be allowed for professional courses in education taken in a junior college, other than an introduction to education courses.

ADMISSION OF GRADUATE STUDENTS

ADMINISTRATIVE CODE

41000. Admission With Graduate Standing: Unclassified.

(a) For admission with graduate standing as an unclassified graduate student, a student shall have completed a four-year college course and hold an acceptable baccalaureate degree from an accredited institution; or shall have completed equivalent academic preparation as determined by the appropriate college authorities.

(b) Admission to a state college with graduate standing does not constitute admission to graduate degree curricula.

41001. Admission to Graduate Degree Curricula: Classified. A student who has been admitted to a state college under Section 41000 may, upon application, be admitted to an authorized graduate degree curriculum of the college as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as the appropriate college authorities may prescribe. Only those applicants who show promise of success and fitness will be admitted to graduate degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness, as determined by the appropriate college authorities, shall be eligible to continue in such curricula. Students whose performance in a graduate degree curriculum is judged to be unsatisfactory by the authorities of the college may be required to withdraw from all graduate degree curricula offered by the college.

FILING OF APPLICATIONS

All graduate students anticipating enrollment at this college must follow the procedures outlined above for admission to the college. Those students planning to take a program leading to a master's degree must, in addition, file an application for admission to the Graduate Division. These application forms may be obtained at the Graduate Office.

FILING OF RECORDS

The student must file official transcripts from **EACH** college or university attended (including extension, correspondence, summer session, or evening courses). If a student plans to enter a master's degree program or a graduate credential program, he must file all transcripts **IN DUPLICATE.** An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received at the Admissions Office become the property of the college and **will not be released nor will copies be made.**

A student who has obtained his degree from San Diego State need not file transcripts, except those transcripts covering work he may have taken at other institutions since graduation. He must, however, file an application for readmission to the college and, if he plans to enter a master's degree program, an application for admission to the Graduate Division and must comply with all other admission procedures outlined above.

GRADUATE BULLETIN

The Graduate Bulletin is available at the office of the Graduate Division.

ADMISSION OF FOREIGN STUDENTS

Applicants for admission whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. If certificates and transcripts are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to the college.

An applicant whose education has been in a language other than English must be able to give evidence of a command of both written and spoken English sufficient to permit him to profit by instruction in this college. A form for this purpose is included with the application form for admission and must be completed by a responsible official of the school or college last attended, or by U.S. Consular Official. In addition, after the student's arrival on the San Diego State College campus, he must take the English Test for Foreign Students which will be used by his adviser to assist the student in planning an appropriate course of study.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State College. Scholarship aid for entering students is limited; no scholarships are specifically reserved for students from another country. Further information regarding scholarships will be found elsewhere in this catalog.

Upon arrival at San Diego State College the student should obtain an appointment as early as possible with the Adviser for Foreign Students. Make an appointment at the Personnel Services Center office.

ADMISSION TO SPECIAL PROGRAMS

For information on admission to special programs, such as Classes Meeting at 4 O'clock or Later, Summer Sessions Program, Extension Courses Program, and the Imperial Valley Campus, refer to the section of this catalog on Special Programs and Facilities.

REGISTRATION

Students who receive notice that they are eligible for admission to the college must complete additional requirements for registration, such as clearance of residency status, payment of fees, and the keeping of other designated appointments as outlined in the *Class Schedule and Instructions for Registration*, a publication issued prior to the beginning of each semester and sold at the campus Bookstore.

RESIDENCY STATUS CLEARANCE

The laws of the State of California require this college to determine the residency status of each student enrolling prior to the payment of fees. A student who has not been **a legal resident** of this State for a period of one year just prior to registration is assessed nonresident tuition **in addition to** the other fees. The residency office will issue instructions to the applicant on the procedure to follow in obtaining residency classification. Specific instructions will be found in the *Class Schedule and Instructions for Registration*, which is issued prior to the beginning of each semester. Students desiring to enroll only in the Program for Classes Meeting at 4 O'clock or Later will find instructions on procedure to follow in obtaining residency classification in the Bulletin on that Program issued by the Office of Extended Services prior to the beginning of each semester.

The residency classification received by any student is subject to review and change. Each student is held responsible for notifying the Residency Office of any change in his legal status as a resident of California.

REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule and Instructions for Registration*, which is available at the student Bookstore prior to the beginning of each semester. Priority numbers appear on the Notice of Admission for entering students, and on the Library-Registration Card of the preceding semester for students continuing their uninterrupted enrollment in the regular semesters.

ADVISING

Provision is made at the time of registration for each student to obtain assistance from a faculty adviser in arranging a program. The faculty adviser is assigned at the time of registration. Each student should thereafter schedule a conference with his adviser at least once during each semester.

CHANGES OF PROGRAM

A student is responsible for any change in his program after registration. Forms for changes in program are available at the Registrar's Office. A fee of $1 is charged for each change of program. Check the calendar for deadline dates for changes of program.

REGULATIONS

GENERAL REGULATIONS
SCHOLASTIC STANDARDS
GRADUATION REQUIREMENTS

GENERAL REGULATIONS

STUDENT RESPONSIBILITY FOR CATALOG INFORMATION

Students are held individually responsible for the information contained in the catalog. Failure to read and comply with college regulations will not exempt a student from whatever penalties he may incur.

MARKING SYSTEM

GRADES AND GRADE POINTS

The following grades and grade points are used in reporting the standing of students at the end of each semester:

Grade		*Grade Points*	*Grade*		*Grade Points*
A	Outstanding achievement	4	D	Passing	1
B	Commendable	3	F	Failure	0
C	Satisfactory	2	I	Incomplete	0

Cr	Credit	–	(Not counted in grade average, but units allowed)
Aud	Audit	–	(No credit and not counted in grade average)
W	Withdrawal passing	–	(Not counted in grade average)
WF	Withdrawal failing	0	(0 grade points for units attempted)

GRADE POINT AVERAGE

The scholarship or grade point average is determined by dividing the total number of grade points earned by the number of units attempted. The minimum satisfactory grade-point average for a bachelor's degree or recommendation for transfer to another collegiate institution is 2.0 (grade of C). The student must have earned at least twice as many grade points as units attempted.

INCOMPLETE GRADE

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. One calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. **An incomplete cannot be removed by repeating the course.**

If the student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

This regulation does not apply to the theses courses numbered 299, which are not counted as units attempted until the final grade has been assigned, provided that the course be completed within the time permitted by the Graduate Office.

INCOMPLETE AT TIME OF GRADUATION

A candidate for graduation whose record carries an incomplete which was received within the last calendar year will be graduated without the opportunity of making up the incomplete if he is otherwise eligible for graduation; however, the incomplete will be counted as units attempted in determining grade point averages and the incomplete cannot be made up after the degree has been granted. If the student does not wish to be graduated with the incomplete on his record, he must officially withdraw as a candidate for graduation.

GRADE REPORTS TO STUDENTS

Following the close of the seventh week of instruction (eighth week of the semester), reports are sent to students who are doing unsatisfactory work. These deficiency reports, known as D notices, are optional with an instructor. Students should be aware of their progress in a course and not depend upon receipt of formal notice if work is unsatisfactory.

At the end of each semester or summer session in which the student is enrolled, a grade report is sent to the student.

CREDIT

UNIT OR CREDIT HOUR

A unit or credit hour represents 50 minutes of lecture or recitation combined with two hours of preparation per week through one semester of 18 weeks. Two hours of "activity" or three hours of "laboratory" are considered equivalent to one hour of lecture.

CREDIT FOR UPPER DIVISION COURSES

A student with lower division standing (fewer than 60 units) is not eligible to take upper division courses (numbered 100-199), with the following exceptions:

(a) A student in the last semester of his sophomore year who is approaching upper division standing and is carrying sufficient lower division units to complete the required minimum of 60 units may carry upper division units for the remainder of his study load.

(b) A student with sophomore standing may carry upper division courses for upper division credit provided that he has the written approval of the chairman of the department and the Dean of the College or his authorized representative. This written approval must be filed at the Evaluations Office, Administration Building, on the Adjustment of Academic Record form, which may be obtained at the Evaluations Office.

CREDIT FOR EXTENSION COURSES

The maximum amount of extension and correspondence credit which may be accepted toward the minimum requirements for the bachelor's degree is 24 semester units, not more than 12 of which may be transferred from another college or university, except that courses taken through the United States Armed Forces Institute, or other official military correspondence schools, shall not be included within these limits. Extension and correspondence credit do not count in satisfaction of the minimum residence requirement. A maximum of six units in extension courses at San Diego State College may be accepted as part of the requirements for the master's degree, subject to limitations described in the section of the catalog on the Graduate Division and in the Graduate Bulletin.

Students desiring to enroll concurrently in extension courses and in the regular college program are subject to the regulations on excess study load. Such students should obtain approval from the Dean of Admissions in advance of registration. Units earned in extension courses will not be counted toward Selective Service requirements.

CREDIT BY EXAMINATION

Approval to receive credit-by-examination is granted at the discretion of the appropriate college authorities and under the following conditions:

(1) The student must be matriculated, in good standing (not on probation), be registered in at least one regular course (not Extension) at the time credit-by-

examination is authorized, and pay for additional units if cost exceeds fees already paid. In summer sessions the total units earned for courses and examinations can not exceed the limit authorized by the Education Code.

(2) Concurrent approval of the chairman of the department concerned and the Dean of the College is required prior to taking the examination. Forms for approval may be obtained from the Registrar.

(3) Credit-by-examination is restricted to regular undergraduate courses listed in the general catalog; does not include 200-numbered, 300-numbered, or Extension courses; cannot exceed 30 units as applicable to graduation; and does not count as residence credit.

(4) Credit-by-examination is not treated as part of the student's study load and, therefore, does not require a petition for excess study load; is not considered for Selective Service purposes or by the Veterans Administration in the application of their respective regulations; and is usually not accepted as transfer credit between collegiate institutions.

CREDIT FOR MILITARY SERVICE

The college is guided by the recommendations of the American Council on Education in granting undergraduate credit toward the bachelor's degree for military service. Postgraduate credit is not granted.

To obtain credit for military service, the student must be fully matriculated and enrolled in the college. The military form DD-214 must be filed with the Admissions Office if military credits are to be counted toward the bachelor's degree or used to shorten the time needed for the degree. This form, or equivalent records verifying active military service in the United States armed forces, should be submitted at the time of applying for admission to the college.

COURSES

NUMBERING OF COURSES

Courses numbered 1 through 99 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 100 through 199 are in the upper division (junior and senior years); and those numbered 200 through 299 are strictly graduate courses. Courses numbered 300 or over are professional education courses in the postgraduate program.

AUDITED COURSE

A student who does not wish to take a course for credit may enroll as an auditor, class size permitting. An auditor must meet all admission requirements and pay the same fees required of students taking the course for credit. An auditor is not held for examinations and does not receive credit or a final grade in the course. A student may change his program from "audit" to "credit" or vice versa within the time limits authorized for changes of program and subject to the regulations for withdrawal from class.

REPEATED COURSE

A student may repeat a course in which he has receive a grade of D or F, but may not receive credit for the course more than once. A repeated course is counted as units attempted and is credited with the grade points earned, the effect being an averaging of the grades. If a student repeats a course in which he has received a grade higher than D, the repeated course will not be counted as units attempted nor will grade points be counted in the student's record. **An incomplete cannot be removed by repeating the course.**

STUDENT CLASSIFICATION

MATRICULATED STUDENT

A matriculated student is one who has complied with all requirements for admission to the college and has received his official Notice of Admission. All students taking courses in any regular semester of the college must be matriculated students. Only in summer sessions or in extension courses may a student who has not matriculated be accepted for enrollment in a college course.

SUMMER SESSION OR EXTENSION-CLASS STUDENT

Each student who enrolls in one or more summer session classes shall be classified as a summer session student. Each student who enrolls in one or more extension classes shall for his extension class work be classified as an extension class student. Such students need not be matriculated students as a prerequisite for enrollment in classes.

RESIDENT OR NONRESIDENT STUDENT

Each student, as a condition for enrollment in a regular semester, must be classified as a resident or a nonresident student. Residency status is defined in the California Administrative Code, Sections 23759, 23760, 41901, and 41902. Refer to the section of this catalog on Registration for instructions on clearing residency status before registration.

LOWER DIVISION STUDENT

Freshman. A student who has earned a total of fewer than 30 semester units.

Sophomore. A student who has earned a total of 30 to 59 semester units, inclusive.

UPPER DIVISION STUDENT

Junior. A student who has earned a total of 60 to 89 semester units, inclusive.

Senior. A student who has earned a total of 90 semester units or more.

GRADUATE STUDENT

Graduate. A student who has completed a four-year college course with an acceptable baccalaureate degree from an accredited institution. For information on classification of graduate students, refer to the section of this catalog on the Graduate Division.

STUDENT PROGRAM AND RECORDS

TRANSCRIPTS OF RECORD

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of $1 is charged (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted.

Once a student has matriculated in this college or has had an official evaluation made, transcripts from other schools or colleges become the property of this college and *will not be released nor will copies be made.*

EVALUATION

An evaluation is a summary of college work completed and of requirements to be completed for a bachelor's degree or credential. To be eligible for an evaluation, a student must have completed at least 45 units of acceptable college work and be qualified for full matriculation. Transfer students with 45 units or more who enroll in the college will automatically receive an evaluation, which is available at the time of registration and advising. Authorization for more than one evaluation during any one semester or one evaluation in nine weeks of summer session requires special permission of the Board of Admissions and Evaluations.

APPLICATION FOR AN EVALUATION

A student who has earned 45 semester units or more, who has not received an evaluation, should apply at the Evaluations Office for an official evaluation. The evaluation is made on the regulations in effect at the time the student entered this college, except as otherwise provided in the California Administrative Code, Chapter 5, Section 40401, Election of Regulations. (Further information is given in the section below on Graduation.)

After an interval of five years from the time an evaluation is made, courses in education to be applied toward a teaching credential are subject to re-evaluation.

STUDY LIST LIMITS

Students who enroll for more units than authorized, including courses taken concurrently outside this college, will not receive credit for the excess number of units.

UNDERGRADUATE PROGRAM

For the undergraduate student, a normal semester's program is 16 units, with 12 units considered the minimum full-time load. A student may carry up to 17½ units with the permission of his adviser. Greater variations are subject to approval of the Dean of the College, or his authorized representative. Students under Selective Service who may wish to seek deferment must carry 15 units per semester and pass 30 units in new courses per academic year.

Students accepting extensive part-time employment are strongly advised to limit their study loads in college. Going to college is regarded as a full-time job. Students are normally expected to spend in class and study a total of three hours per week for each unit of college work attempted. A normal 16-unit load therefore represents a 48-hour week.

GRADUATE PROGRAM

For information on study list limits for the graduate program, refer to the Graduate Bulletin.

CHANGE OF MAJOR OR CURRICULUM

At the time of admission to the college, each undergraduate student is assigned to a major field or curriculum, or is designated as an undeclared major. After registration, any student wishing to change his major or curriculum, must make application at the Personnel Services Center.

Veterans using veteran benefits must obtain appropriate approval from the Veterans Administration for necessary changes in letters of eligibility.

CHANGE OF PROGRAM AFTER REGISTRATION

A change of program after registration includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing from audit to credit or from credit to audit; changing a section of the same course.

A change of program may be made on or before the published dates. Forms for the change of program may be obtained at the Registrar's Office. A fee of $1 is charged for each change of program made after registration. The effective date of withdrawal or change of program is the date on which the completed and acceptable forms are filed by the student at the Registrar's Office.

WITHDRAWAL AND READMISSION

OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official study list. Any withdrawal from college or withdrawal from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student withdraws officially from college or from a class by the end of the third week of classes, the course will not be recorded on the permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week of classes, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from college (that is, from all courses) will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal from college.

UNOFFICIAL WITHDRAWAL

Unofficial Withdrawal. A student withdrawing unofficially from class or from college will receive failing grades in all courses which he stops attending. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms within the deadlines established for withdrawing.

Veterans unofficially withdrawing will have veteran's allowances immediately suspended and will be subject to full repayment of allowances received after date of unofficial withdrawal.

WITHDRAWAL TO ENTER MILITARY SERVICE

Under certain conditions, a student withdrawing from college to enter military service is entitled to apply for refund of materials and service fees or for partial credit (but not both). To qualify under this regulation, the student must (a) be a civilian who, because of his own initiative, receives orders to immediate extended active duty, or (b) be a civilian who receives orders to immediate extended active duty by government action, or (c) be a reservist called to immediate extended active duty. (Not applicable to other military personnel enrolled in the college.)

Entrance upon extended active military duty must be without unreasonable and unnecessary delay (normally within 30 days) after the date of withdrawal from college to qualify the student for refund or partial credit. Verification of entry upon extended active duty is required and must be by written statement of the commanding officer or by official copy of orders. Application for withdrawal from college may be made by the student in person, or by telephone or mail. Forms for withdrawal will also be sent to the student if requested by a person designated by the student as his representative in making the request.

If the student is passing in courses at the time of withdrawal from college, partial credit may be granted in undergraduate courses at the rate of one-third credit for completion of the first six weeks of the semester, or two-thirds for the first 12 weeks. The college does not wish to influence the student in choosing between partial credit and refund of fees; however, it should be pointed out that partial credit in a course may not satisfy some specific requirement for which that course may be needed and if the course is later repeated by the student the partial credit will be lost as "repeated" work.

READMISSION

A student who withdraws from college must file application for readmission if a full semester lapses between the time of his withdrawal and return to college. Check calendar for deadline dates on readmission applications.

A $5 application fee for readmission is required if the applicant was not regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, or if the student was enrolled at another institution subsequent to the last attendance at San Diego State. Make check or money order payable to San Diego State College.

FINAL EXAMINATIONS

No final examination shall be given to individual students before the regular time. Any student who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

GRADUATION

ELECTION OF REGULATIONS FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40401. Election of Regulations. A student remaining in continuous attendance in regular sessions and continuing on the same curriculum in a state college may, for purposes of meeting graduation requirements, elect to meet the graduation requirements in effect either at the time of his entering the curriculum or at the time of his graduation therefrom, except that substitutions for discontinued courses may be authorized or required by the proper college authorities.

APPLICATION FOR GRADUATION

A candidate for graduation at mid-year must file an application for graduation with the Evaluations Office, Administration Building, not later than the end of the third week of classes of the fall semester. A candidate for graduation in June or summer session must file an application for graduation not later than the end of the eleventh week of classes of the fall semester of the academic year in which he expects to graduate. Refer to the calendar in this catalog for deadline date for filing. A $2 fee is charged for filing applications for graduation after deadline date.

AUTHORIZATION FOR GRADUATION

The California Administrative Code, Chapter 5, provides as follows:

40,400. Procedure for Granting Diplomas, Certificates, and Degrees. The Board of Trustees, upon recommendation of the faculty of the college, shall issue the appropriate diploma, certificate or degree to a student who has completed the prescribed course of study.

COMMENCEMENT EXERCISES

Commencement exercises are held once a year at the end of the spring semester for students who were graduated at midyear, those graduating at the end of the spring semester, and students who expect to complete requirements for graduation in the summer session.

GRADUATE DIVISION REGULATIONS

The general regulations described in this section of the catalog apply to both undergraduate and graduate students. For information on additional regulations for graduate students, refer to the section of this catalog on the Graduate Division and to the Graduate Bulletin.

TRANSFER TO GRADUATE SCHOOLS

Attention of students who plan to transfer to graduate schools is called to the fact that admission to graduate programs, at this or any other college or university, may be determined by the student's undergraduate preparation. A bachelor's degree from an accredited collegiate institution does not necessarily insure admission to a graduate school. The student's undergraduate scholastic standing and selection of courses appropriate to graduate study in the institution to which the student expects to transfer are factors in determining his eligibility for admission. The University of California, for example, reserves the right to evaluate and possibly reduce the credit in certain work which has been used for the student's bachelor's degree. Examples of such work would be credit for nurses' training, credit transferred from certain foreign schools, credit for military service, and courses of a non-academic nature.

The student should determine as early as possible in his undergraduate program what the requirements are of the graduate school to which he expects to transfer. His undergraduate program, in consultation with his adviser, should be planned accordingly.

SECOND BACHELOR'S DEGREE

A second bachelor's degree may be earned if the student has an excess of 24 units beyond the minimum requirements for the first bachelor's degree, makes a complete change in major or degree, fulfills all requirements for the degree as required by this college, and has approval of the Dean of the College.

SCHOLASTIC STANDARDS
AND STUDENT DISCIPLINE

SCHOLASTIC STANDARDS

HONORS PROGRAM

The Honors Program at San Diego State provides opportunities for superior students to use and develop their talents in a variety of ways, both all-college and departmental.

Those who have taken the Advanced Placement Examinations should refer to the section of the catalog so titled.

Prior to entrance, freshmen who have superior high school records may, on the basis of their college aptitude test scores, be invited to participate in a special advising program. Here attention is given to individual needs and interests. Later, as sophomores, such students are eligible for the Honors Colloquium (Humanities 66).

Some departments offer Honors sections of selected courses. Normally, admission is by invitation, but any student interested should consult the *Class Schedule* for the name of the faculty member in charge and consult with him to establish eligibility.

Upon completion of the sophomore year a student who has maintained a superior scholastic record may be eligible for admission to the upper division Honors Program of his major department. Specific requirements and details of these programs vary with the different departments. To apply, a student should consult his major adviser or the chairman of his major department.

The purpose of the San Diego State Honors Program is, within practicable limits, to meet the individual needs of the most capable students. Credit by examination, release from regular attendance, modification of curriculum requirements in the major and minor, and individual study are other opportunities available with the consent of the major adviser or other authorities.

GRADUATION WITH HONORS

With the approval of the faculty, graduation with honors is granted to those students in each graduating class who have achieved high grade point averages by the beginning of the fall semester for mid-year graduates and by the end of the fall semester for June and summer session graduates.

The grade point average is computed on work done at this institution, except that if the grade point average for work at other collegiate institutions is lower, that work is included in the computation of the grade point average on which honors will be granted.

GRADUATION WITH DISTINCTION IN THE MAJOR

Upon recommendation of his major department and with the approval of the faculty, a student doing superior work in his major field may be graduated with distinction in that field.

SCHOLASTIC PROBATION

Any student, undergraduate or graduate, whose scholarship record falls below a C average (2.0) for all college work attempted or all college work attempted at San Diego State College will be placed on probation.

Probation may be continued provided that the student obtains a C average or better each semester while on probation. The student will be removed from probation when he has attained a C average or better on all college work attempted and on all college work attempted at San Diego State College.

SCHOLASTIC DISQUALIFICATION

DISQUALIFICATION

Any student on probation whose scholarship falls below a C average (2.0) in any single semester or summer session will be subject to disqualification and dismissal from the college.

Veterans' Eligibility

Veterans who are disqualified from further attendance at this college forfeit their rights to veteran benefits. Specific information should be obtained from the Veterans Administration regarding continuance of education.

PETITION FOR REINSTATEMENT

A disqualified student may be reinstated for reasons satisfactory to the Board of Admissions. Applications for reinstatement must be made on forms which may be obtained at the Admissions Office. Students petitioning for reinstatement are required to have personal interviews with at least three members of the Board of Admissions.

STUDENT DISCIPLINE

STUDENT DISCIPLINE

Any student may be placed on probation, suspended, or expelled for one or more of the following causes:

(a) Disorderly, unethical, vicious, or immoral conduct.

(b) Misuse, abuse, theft, or destruction of state property.

The period for which the student may be placed on probation or suspended by the president shall not exceed 12 months. Fees or tuition paid by or for the student for the semester or summer session in which he is suspended will not be refunded. If the student is a minor, the president shall immediately notify the parent or guardian of the action taken. (Reference: California Administrative Code, Chapter 5, Sections 41301, 41302, 41303.)

GRADUATION REQUIREMENTS

FOR THE BACHELOR'S DEGREE

SUMMARY OF REQUIREMENTS

To qualify for graduation the student must complete the following requirements: (1) minimum number of units, (2) residence requirement, (3) minimum scholarship average, (4) upper division course requirement, (5) a major, and a minor if required, (6) competency tests, (7) all college regulations, (8) requirement in American institutions, and (9) 45 units of general education in addition to the major.

REQUIREMENTS

1. UNITS

Graduation with a bachelor's degree represents a four-year college course of study with a minimum of 124 to 132 semester units required as follows:

BACHELOR OF ARTS DEGREE. A minimum of 124 semester units.

BACHELOR OF SCIENCE DEGREE. A minimum of 128 semester units (except for students with a major in engineering which requires 132 semester units).

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. A minimum of 124 semester units.

2. RESIDENCE

For all degrees, except the bachelor of education, a minimum of 24 semester units must be earned in residence credit, at least half of which must be completed among the last 20 semester units counted toward the degree. Credit in summer sessions may be counted as residence credit on a unit-for-unit basis. Credit for "extension courses" or "credit-by-examination" cannot be counted as residence credit.

For residence requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree.

3. SCHOLARSHIP

Each student shall complete with a grade-point average of 2.0 (grade C on a five-point scale) or better: (a) all units attempted; (b) all units in the major; and (c) all units attempted at this college.

4. UPPER DIVISION COURSE REQUIREMENTS

Graduation with a bachelor's degree requires a minimum of 36 to 45 semester units in courses carrying upper division credit (may include the major, minor, general education, and electives), distributed as follows:

BACHELOR OF ARTS DEGREE. A minimum of 40 upper division semester units (except in the College of Arts and Sciences which requires 45 upper division units).

BACHELOR OF SCIENCE DEGREE. A minimum of 36 upper division semester units.

BACHELOR OF EDUCATION (OR B.V.E.) DEGREE. For a description of requirements for the B.E. degree, refer to the section of this catalog on the Bachelor of Education Degree. Requirements for the B.V.E. degree are 40 upper division units.

5. MAJOR AND MINOR

Each student shall complete as a requirement for graduation one major and, if required by the major department, one minor. Some majors also include a foreign language requirement. Students graduating with a degree and credential taken concurrently must complete both the degree and the credential requirements.

Major. The major consists of a pattern of prescribed upper division courses totaling not less than 24 units for the A.B. degree and not less than 36 units for the B.S. degree. The maximum number of units for a major is determined by the college.

Majors for the B.E. and B.V.E. degrees and majors for the junior high school credential and degree are defined in the respective sections of this catalog on those degrees and the credential.

Courses in the major are exclusive of those courses used to meet the requirement of 45 units in general education. Lower division prerequisite and related courses required by the department in preparation for the major may be used in general education if applicable. Such course or courses, however, may not be used as part of the minimum unit requirement in the student's minor.

Minor. The minor normally consists of from 15 to 22 units, at least six units of which must be in upper division courses. Specific requirements and maximum number of units are determined by the college.

6. COMPETENCY TESTS

To qualify for graduation with any bachelor's degree, except the B.E. degree, each student must demonstrate competence in mathematics, speech, and the writing of English by satisfactorily passing the college tests in these areas or by passing courses or programs of study specifically designated in lieu of these competency tests. For special regulations governing the B.E. degree, refer to that degree. Descriptions of the competency tests follow:

MATHEMATICS COMPETENCY TEST

The Mathematics Competency Test is the mathematics part of the College Aptitude Test, which is required of all new students before registration. Students failing to make a satisfactory score on this Mathematics Competency Test (except those students taking the B.E. degree) are required to enroll in Mathematics A. The graduation requirement in mathematics competency may be satisfied by passing the test or one of the following courses: Mathematics A, 3, 4, 18, 21, 22, 40, 50, 51, 52, or 60.

SPEECH COMPETENCY TEST

The Speech Competency Test is given to students who are enrolled in Speech Arts 3, Oral Communication, a required course in general education for all bachelor's degrees except the B.E. degree. Students failing the test are required to enroll concurrently in Speech Arts 2, Oral Communication Laboratory, and complete the course for an additional one unit of credit (not applicable to general education) as part of the graduation requirement in speech competency.

WRITING COMPETENCY TEST

The Writing Competency Test must be taken by all students except candidates for the B.E. degree at the first scheduled date for the test following the student's completion of 45 units of college work. All students transferring to this college with 45 units or more of advanced standing credit must take this test before registration regardless of the degree for which they are working. Passing of this test or satisfactory completion of designated courses or remedial programs prescribed for the student by the College Committee on English is a graduation requirement, except for B.E. degree students.

7. ALL-COLLEGE REGULATIONS

Compliance with all regulations prescribed by the college is a requirement for graduation with any bachelor's degree.

8. AMERICAN INSTITUTIONS

Each student to qualify for graduation with a bachelor's degree shall demonstrate competence in the following areas of American institutions:

1. The Constitution of the United States.
2. American history, including the study of American institutions and ideals.
3. The principles of state and local government established under the Constitution of the State of California.

The student shall meet these requirements by passing a comprehensive examination on these fields prepared and administered by the college or by completing appropriate courses.

Students transferring from other accredited institutions of collegiate grade who have already met these requirements shall not be required to take further courses or examinations therein.

The graduation requirement in American institutions may be fulfilled by any one of the following alternatives:

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COURSES

The graduation requirement in American institutions may be met by satisfactory completion of one of the following groups of courses:

(a) History 17A and 17B
(b) History 172A and 172B
(c) Political Science 71A and 71B
(d) Political Science 115 and 142 or 143 or 148.

COMPLETION OF AMERICAN INSTITUTIONS THROUGH EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a comprehensive examination in each of the following areas:

1. American history, institutions and ideals
2. United State Constitution
3. California state and local government

Students electing to remove requirements through examination may obtain a bibliography of suggested reading at the Evaluations Office in the Administration Building. Examinations for removal of these requirements are given once each semester and in Term I summer session.

COMPLETION OF AMERICAN INSTITUTIONS THROUGH COMBINATION OF COURSES AND EXAMINATIONS

The graduation requirement in American institutions may be met by satisfactory completion of a combination of courses or a combination of courses and examinations in the required areas.

Students electing to remove requirements in this manner should select courses from those listed below:

Courses meeting requirements in American History	**Courses meeting requirements in U.S. Government**	**Courses meeting requirements in California Government**
History 8A and 8B	Political Science 71A	Political Science 71B
History 176A and 176B	Political Science 115	Political Science 115
History 177A and 177B	Political Science 127A and 127B	Political Science 127B
History 179A and 179B	Political Science 139A and 139B	Political Science 142
History 181A and 181B	History 17A	Political Science 143
	History 172A	Political Science 148
	History 177A and 177B	History 8B
		History 17B
		History 172B
		History 189

9. GENERAL EDUCATION REQUIREMENTS

Forty-five semester units in general education must be completed in addition to courses in the major. The major is defined as the required block of upper division courses. Courses in general education must be selected in accordance with the pattern described below. The student should refer to the requirements in his major field before selecting general education courses. Students electing majors in liberal arts and sciences, offered by the College of Arts and Sciences, will follow the distribution of courses required by that College instead of the pattern outlined below.

The pattern requirements in general education may be fulfilled by examinations with an accompanying reduction in the 45 units but without course credit. Permission to take such examinations must be obtained from the Dean of the College and have the approval of the department in which the examination will be taken. Examinations in American institutions are given each semester and during the summer session; these examinations may be taken once without the Dean's permission.

PATTERN OF GENERAL EDUCATION AREA REQUIREMENTS

		Minimum Units	*Maximum Units*
A. Natural Sciences		9	12
B. Social Sciences		9	12
C. Literature, Philosophy, and the Arts		8	12
D. Communication		5	8
Oral communication	2–3		
Written communication	3–6		
E. Personal and Social Development		7	10
Health education	2		
Physical education	2		
Psychology	3		
Electives	0–3		
F. General Electives			
Air Science		0	6
Foreign language		0	6
Mathematics		0	6
Total units required		45	

SPECIFIC REQUIREMENTS

For specific explanation of requirements in general education, refer to the following descriptions:

NATURAL SCIENCES

A. Natural Sciences (9-12 units). Students must include at least one course from Group 1 and at least one of the options from Group 2. If, in meeting these requirements, the student has not completed at least nine units, additional courses may be selected as indicated in Group 3. The courses selected must include at least one unit of laboratory in one of the groups. Not more than 12 units from this area may be counted in the total requirement of 45 units of general education.

Group 1. Life Sciences

(a) Lecture and laboratory
Biology 3, 4, or 5.

(b) Lecture only
Biology 1.

Group 2. Physical Sciences

(a) Lecture and laboratory
Astronomy 1 and 9; Chemistry 1A or 2A; Geology 1A or 2 and 3; Physical Science 1 and 4, or 2 and 4, or 5 and 4; Physics 2A and 3A, or 4A, or 5.

(b) Lecture only

Astronomy 1; Geography 1 or 3; Geology 2; Physical Science 1, 2, or 5; Physics 2A.

Group 3. Electives

Any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.

SOCIAL SCIENCES

B. Social Sciences (9-12 units). Students must complete the requirements in Groups 1 and 2, and may elect courses from Group 3 to complete a minimum of nine and maximum of 12 units in this area. The Group 1 requirements may be met in whole or in part by examination, or by other options described in this section of the catalog on American Institutions.

Group 1. American Institutions

History 17A and 17B; or 172A and 172B; or
Political Science 71A and 71B; or 115 and 142 or 143 or 148.
If the entire requirement is met by examination, substitute three units in anthropology, economics, geography, (except 1 or 3), or sociology (except 35), and three units in history or political science for the six-unit requirement.

Group 2. Social Sciences

Select one course: Anthropology 1A or 1B; Economics 1A; Geography 2; or Sociology 1 or 10.

Group 3. Electives

Business Administration 30A, 134; or any course in the departments of anthropology, economics, geography (except 1 or 3), or sociology (except 35).

LITERATURE, PHILOSOPHY, AND THE ARTS

C. Literature, Philosophy, and the Arts (8-12 units). Students must complete Groups 1, 2, and 3, and may elect courses from Group 4, but may not count more than six units in any one of the fields of literature, philosophy, art, or music, nor more than 12 units in the area as a part of the 45 unit requirement in general education.

Group 1

Select one course in literature from English 2, 50A, 50B, 52A, 52B, 56A, 56B, 60A, 60B.

Group 2

Philosophy 1A or 20; or any course in literature in the departments of English, foreign language, and comparative literature.

Group 3

Two or three units selected from Art 5, 6A, 9, 50A, 50B, 51; or Music 7A, 51, 52, 70 through 88, 151, 170 through 188; or Philosophy 1A or 20 (if neither is elected under Group 2); or students may substitute a maximum of three units of mathematics courses numbered 18 or above.

Group 4. Electives

Up to three units of courses in the departments of art, music, or philosophy; or any course in literature in the departments of English, foreign language, and comparative literature; or Speech Arts 5, 130, 154A, 154B, 190; or History 4A, 4B, 111A, 111B.

COMMUNICATION

D. Communication. (5-8 units). Students must complete Groups 1 and 2, and may elect one course from Group 3, but may not count more than eight units in the area as a part of the 45 unit requirement in general education.

Group 1
Speech Arts 3 or 4 (or two units of 1X for foreign students).

Group 2
English 1A (or 1X for foreign students).

Group 3. Electives
English 1B, 61, 62, 106; or Speech Arts 11A, 55A, 60A, 60B.

PERSONAL AND SOCIAL DEVELOPMENT

E. Personal and Social Development (7-10 units). Students must complete Group 1 and may elect courses from Group 2, but may not count more than 10 units in the area as a part of the 45 unit requirement in general education.

Group 1
Psychology 1;
Health Education 21; and
Four semesters of physical education activities.
(A physical education activity taken in summer session may be counted in lieu of one taken during the fall or spring semester.)

Group 2. Electives
Business Administration 182; Health Education 65, 90; Home Economics 1, 4A, 15, 35, 70, 150; Industrial Arts 5, 6, 85; Library Science 1; Psychology 11, 12, 14, 106, 107, 145; Sociology 35.

ELECTIVES

F. Electives (0-6 units). Students must complete the minimum requirements (38 units) in areas A through E. To fulfill the total requirement of 45 units in general education, students may elect courses within the areas as indicated or may select from the following courses:

1. Air Science
Two units will be granted for completion of Air Science 1 and two units for Air Science 21. Two additional units will be granted for completion of Air Science 131A. These six units correspond to the parts of the AFROTC program which lie in the areas of social science, natural science, communication, and other areas of the general education pattern; however, these units will not be included within the unit minima or maxima specified in any such area.

2. Foreign language
A maximum of six units may be selected in foreign language.

3. Mathematics
A maximum of six units in this area of general education electives may be elected in Mathematics 3, 10, or in courses numbered 18 and above.

COLLEGE CURRICULA

SUMMARY

SUMMARY OF CURRICULA OFFERED

	Applied Arts and Sciences		Liberal Arts and Sciences	Professional Curricula				Graduate Curricula	
	The General Programs		College of Arts and Sciences	Business Administration	Engineering	Education		Graduate Division	
Majors	AB	BS	AB	BS	BS	AB	BE	MA	MS
Accounting				BS					
Anthropology			AB						
Art	AB	--	AB			*AB	--	MA	
Astronomy	AB	--	AB						
Banking and finance				BS					
Biology	‡AB	BS	AB					MA	MS
Botany	--	BS	AB						
†Business administration								--	MS
Business education				BS		*AB	--	MA	
Chemistry	AB	BS	AB					MA	MS
Economics			AB					MA	
†Education								MA	
Elementary education						*AB	*BE		
Engineering					BS				
English			AB			*AB	--	MA	
French			AB			*AB	--	MA	
General major	AB	--	AB						
General science						*AB			
Geography			AB					MA	
Geology	AB	BS	AB					--	MS
German			AB			*AB			
Health education	--	BS						MA	
History			AB					MA	
Home economics	AB								
Homemaking education						*AB			
Industrial arts	AB	--				*AB	--	MA	
Insurance				BS					
Journalism	AB								
Language arts	‡AB								
Latin-American studies			AB						
Management				BS					
Marketing				BS					
Mathematics	AB	--	AB			*AB	--	MA	MS
†Mechanical engineering								--	MS
Microbiology	--	BS	AB						
Music	AB	--				*AB	--	MA	
Nursing	--	BS							
Office management				BS					
Philosophy			AB					MA	
Physical education	AB	--				*AB	--	MA	
Physical science	‡AB	--						MA	
Physics	AB	BS	AB					MA	MS
Political science			AB					MA	
Psychology	‡AB	--	AB					MA	MS
Public administration	AB	--						--	MS
Public personnel management	AB								
Radio-TV broadcasting	--	BS							
Real estate				BS					
Recreation	AB								

SUMMARY OF CURRICULA OFFERED—Continued

	Applied Arts and Sciences		Liberal Arts and Sciences	Professional Curricula				Graduate Curricula	
	The General Programs		College of Arts and Sciences	Business Administration	Engineering	Education		Graduate Division	
Majors	AB	BS	AB	BS	BS	AB	BE	MA	MS
Secretarial management				BS					
Social science	‡AB	--	AB			*AB	--	MA	
Social welfare			AB						
Sociology			AB					MA	
Spanish			AB			*AB	--	MA	
Speech arts	AB	--				*AB	--	MA	
Vocational arts						--	BVE		
Zoology	--	BS	AB						
Total undergraduate majors: 54	21	10	26	9	1	15	2	24	9

† For master's degree only (not an undergraduate major).
‡ Limited to students in teacher education.
* Degree awarded concurrently with a teaching credential.

SPECIAL CURRICULA AND CERTIFICATES

Preprofessional Curricula

Predental
Prelegal
Premedical

Curricula in Broad Field Areas

Humanities
Africa and the Middle East
American studies
European studies
Medical technology

Military Curriculum

Air science (A.F.R.O.T.C.)

Certificate (nondegree) Programs

Certificate in public administration

Extension Program

Certificate in industrial management
Certificate in office management

TEACHING CREDENTIALS

Credentials currently available

General elementary
Kindergarten-primary
Junior high school
Special secondary
Health and development
Teaching exceptional children
General secondary
General pupil personnel services
Junior college
Administration in elementary education
Administration in secondary education
Supervision

New credentials effective July 1, 1963

Standard teaching credential with specialization in:
  (a) Elementary teaching
  (b) Secondary teaching
  (c) Junior College teaching
Standard designated subjects credential
Standard designated services credential
Standard supervision credential
Standard administration credential

MINORS FOR THE BACHELOR'S DEGREE

Accounting
Air science
Anthropology
Art
Astronomy
Banking and finance
Biology
Botany
Business education
Business management
Chemistry
Comparative literature
Economics
Employee relations
Engineering
English
French
General science (with credential)
Geography
Geology
German
Health education
History
Home economics
Homemaking education
  (with credential)
Industrial arts
Insurance
Journalism
Library science
Marketing
Mathematics
Microbiology
Music
Philosophy
Physical education
Physical science
Physics
Political science
Production management
Psychology
Public administration
Radio and television broadcasting
Real estate
Recreation
Russian
Secretarial management
Social science (with credential)
Sociology
Spanish
Speech arts
Zoology

APPLIED ARTS AND SCIENCES

THE GENERAL PROGRAMS

THE GENERAL PROGRAMS
IN APPLIED ARTS AND SCIENCES

DEGREE PROGRAMS

REQUIREMENTS FOR THE A.B. OR B.S. DEGREE

Students taking majors offered in the General Programs in applied arts and sciences must complete the graduation requirements listed below for the A.B. or B.S. degree. (Refer to the section of this catalog on Graduation Requirements for more detailed information.)

GRADUATION REQUIREMENTS

1. A minimum of 124 semester units for the A.B. degree or 128 units for the B.S. degree in the General Programs in applied arts and sciences.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 40 upper division units for the A.B. degree or 36 upper division units for the B.S. degree.
5. One major, and one minor if required by the department offering the major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competency in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. Forty-five units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.

MAJORS FOR THE A.B. OR B.S. DEGREE

The major consists of a prescribed pattern of upper division courses totaling not less than 24 units for the A.B. degree or 36 units for the B.S. degree. The number of units beyond the minimum may be specified in the description of the major. Courses in the major may not be counted in the 45 unit general education requirement.

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the department. Additional requirements may include foreign language and a minor. Such courses, not included in the upper division pattern which constitutes the major, may be counted in general education if applicable.

LIST OF MAJORS FOR THE A.B. DEGREE

IN THE GENERAL PROGRAMS

- Art
- Astronomy
- †Biology
- Chemistry
- General major
- Geology
- Home economics
- Industrial arts
- Journalism
- †Language arts
- Mathematics
- Music
- Physical education
- †Physical science
- Physics
- †Psychology
- Public administration
- Public personnel management
- Recreation
- †Social science
- Speech arts

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† Limited to students admitted to and continuing in teacher education to time of graduation.

Refer also to the College of Arts and Sciences for a list of majors offered in the liberal arts and sciences program; and to Professional Curricula in Education for teaching majors leading to credentials.

LIST OF MAJORS FOR THE B.S. DEGREE

IN THE GENERAL PROGRAMS

- Biology
- Botany
- Chemistry
- Geology
- Health education
- Microbiology (and medical technology curriculum)
- Nursing
- Physics
- Radio and television broadcasting
- Zoology

Refer also to Professional Curricula in Business Administration and to Professional Curricula in Engineering for majors leading to the B.S. degree in those fields.

MINORS FOR THE A.B. OR B.S. DEGREE

The minor consists of from 15 to 22 units, at least six of which must be in upper division courses. A few minors may vary from this pattern. Minors are described later in this section of the catalog.

Minors in the following list are available to students taking any program leading to the A.B. or B.S. degree, whether in the General Programs, College of Arts and Sciences, or Professional Curricula (subject to possible limitations stated in the description of the minor). See also teaching minors in the section on Professional Curricula in Education.

LIST OF MINORS FOR THE A.B. OR B.S. DEGREE

- Accounting
- Air science
- Anthropology
- Art
- Astronomy
- Banking and finance
- Biology
- Botany
- Business education
- Business management
- Chemistry
- Comparative literature
- Economics
- Employee relations
- Engineering
- English
- French
- General science (with credential)
- Geography
- Geology
- German
- Health education
- History
- Home economics
- Homemaking education (with credential)
- Industrial arts
- Insurance
- Journalism
- Library science
- Marketing
- Mathematics
- Microbiology
- Music
- Philosophy
- Physical education
- Physical science
- Physics
- Political science
- Production management
- Psychology
- Public administration
- Radio and television broadcasting
- Real estate
- Recreation
- Russian
- Secretarial management
- Social science (with credential)
- Sociology
- Spanish
- Speech arts
- Zoology

DESCRIPTION OF MAJORS IN THE GENERAL PROGRAMS

IN APPLIED ARTS AND SCIENCES

ART MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

The major in art may be planned with an emphasis on crafts, on graphic arts, or on graphic communication. The program with emphasis on crafts leads in the direction of industrial design, interior design, cabinet making, sculpture, weaving, textile design, ceramics, jewelry design, and the like. The program with emphasis on graphic arts leads in the direction of such fields as illustration, portraiture, landscape painting, mural design, and fashion design. The program with emphasis on graphic communication leads in the direction of the professional goal of art direction, advertising design, fashion illustrating, or production illustration.

BASIC REQUIREMENTS FOR ALL STUDENTS

Prerequisites for all students. Art A, B, 6A, 6B, 14A, 50A, 50B, and 5 or 51. (16 units.)

In addition to these courses, the student must complete the requirements in one of the fields of emphasis listed below.

EMPHASIS ON CRAFTS

In addition to the basic requirements, the student emphasizing crafts must complete the following courses:

Prerequisites. Art 7, 13, 17A, and 61. (9 units.)

Major. A minimum of 24 upper division units to include Art 106A, 111A, 113A; six units selected from Art 117A-B-C-D, 119A, 119B; and 12 units of upper division art electives.

EMPHASIS ON GRAPHIC ARTS

In addition to the basic requirements, the student emphasizing graphic arts must complete the following courses:

Prerequisites. Art 15A, 16A, and four units of art electives. (8 units.)

Major. A minimum of 24 upper division units to include Art 106A, 112A, 112B, 116A, 116B; six units from Art 115A-B-C-D; and eight units of upper division art electives.

EMPHASIS ON GRAPHIC COMMUNICATION

In addition to the basic requirements, the student emphasizing graphic communication must complete the following courses:

Prerequisites. Art 7, 14B, 15A, and 16A. (8 units.) Recommended electives: Art 15B, 94A.

Major. A minimum of 24 upper division units to include Art 112A, 114A, 114B, 114C, 115A, 118A, 156, 193, 194A, 196; and three units of art electives selected with approval of the adviser. Recommended electives: Art 106A, 111A, 112B, 115B, 116A, 116B, 194B; Business Administration 153.

MINOR

Minor. A minor is not required with this major.

ASTRONOMY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Astronomy 9, 10, 50, 51; and Physics 4A-4B-4C. (20 units.) Recommended: Chemistry 1A-1B.

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and nine units of physics to include Physics 101, 103, and 105. Recommended: Physics 106, 151, 175; and Astronomy 103, 105, and 110.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52, 119, and three units of upper division mathematics electives. (Mathematics 175 is recommended.)

BIOLOGY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in teacher education)

This major is available in the General Programs only to students who have been admitted to and continue in teacher education to time of graduation. (Refer to the College of Arts and Sciences for a description of this major in liberal arts and sciences and to Professional Curricula in Education for a description of the teaching major.)

Prerequisites. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 60; Chemistry 2A-2B (1A-1B preferred); Physics 2A-2B (or with the approval of the departmental adviser, high school physics and college courses in Geology 2 and Physical Science 1).

Major. A minimum of 27 upper division units to include Biology 101, 110, 115, 161; Microbiology 101; and eight units to be selected with approval of the adviser.

Minor. A minor is not required with this major for the degree.

BIOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 60; Chemistry 1A-1B or 2A-2B; and Physics 2A-2B. (40 units.)

Major. A minimum of 36 upper division units in biology, botany, microbiology, and zoology, to include the following: Biology 101, 110, 155, 161; Microbiology 101; the remaining units to be selected with approval of the adviser.

Minor. A minor is not required with this major.

BOTANY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Botany 50 and 51; and Chemistry 1A-1B. (26 units.) Recommended: German, French, Russian, or Spanish; Geology 1A-1B or 2 and 3.

Major. A minimum of 36 upper division units in botany and related fields, selected with approval of the adviser, to include Biology 101, 110, 155; Microbiology 101; Botany 107 and 114. Recommended: Biology 161.

Minor. A minor is not required with this major.

CHEMISTRY MAJORS

IN APPLIED ARTS AND THE SCIENCES

Three majors in chemistry are offered in the General Programs in applied arts and sciences. A chemistry major in liberal arts and sciences is also offered by the College of Arts and Sciences.

The chemistry majors available in the General Programs are as follows:

(1) Chemistry major with the B.S. degree and Certificate of the American Chemical Society, a program designed to qualify graduates for many types of positions as chemists and for admission to graduate work in chemistry;

(2) **Plan A,** a chemistry major with the A.B. degree and Certificate of the American Chemical Society, designed to prepare students for graduate work in chemistry; and

(3) **Plan B,** a chemistry major with the A.B. degree, designed for students who do not intend to become professional chemists but who desire the major in chemistry (without the Certificate of the American Chemical Society) as part of a liberal education or as preparation for entering a related profession.

CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The Department of Chemistry is on the aproved list of the American Chemical Society. Programs leading to the B.S. degree or the A.B. degree (Plan A) are designed to meet the standards prescribed for the Certificate of the American Chemical Society. The program leading to the A.B. degree (Plan B) is not offered with the Certificate. Provision is made for students taking the chemistry major in liberal arts and sciences to obtain the A.B. degree with or without the Certificate.

FOREIGN LANGUAGE

Foreign language (German) is required in all programs leading to the Certificate of the American Chemical Society. Under Plan B, foreign language is not required. Foreign language is required with the chemistry major in liberal arts and sciences, offered by the College of Arts and Sciences, whether the major is taken with or without the Certificate.

CHEMISTRY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND THE SCIENCES AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

The curriculum outlined below for the B.S. degree in the General Programs is based upon the recommendations of the Committee for Professional Training of Chemists of the American Chemical Society. It qualifies graduates for many types of positions as chemists and provides the training required by most universities for admission to graduate work in chemistry.

Requirements

Prerequisites. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 36 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 150, one unit of 198; and 17 units of upper division electives in chemistry.

Foreign Language Requirement. (a) Credit in German 8A-8B or (b) completion of German 1 and 2 with a grade of C or better and a demonstrated proficiency in the reading of scientific German as determined by the Chemistry Department in consultation with the Foreign Languages Department.

Minor. A minor is not required with this major.

Outline for the B.S. Degree and Certificate

First year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 1A-1B	5	5
Mathematics 40, 50	5	5
Physics 4A	...	4
Speech Arts 3 (or 4)	...	2
Biology 1 or 3	3	...
English 1A	3	...
P.E. activity	½	½
	16½	16½

Second year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 5	4	
Chemistry 12	...	4
Chemistry 13	...	1
Mathematics 51, 52	4	4
Physics 4B, 4C	4	4
German 1, 2	4	4
P.E. activity	½	½
	16½	17½

Third year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 110A-110B	3	3
Chemistry 112, 113	5	...
Chemistry 150	...	4
†German 8A-8B	2	2
American Institutions	3	3
Psychology 1	...	3
Health Education 21	2	–
	15	15

Fourth year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 111	...	3
Chemistry 198	1	...
‡Advanced chemistry	9	8
Lit., phil., and the arts	3	3
Social science	3	...
Elective	...	1
	16	15

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† German 8A-8B may be omitted by the passing of an examination in the reading of scientific German, if student has grade of C or better in German 1 and 2.

‡ Must include four units lecture and one unit laboratory from courses requiring three full year-courses in chemistry as prerequisites. Remainder may include courses in related subjects by approval of the department.

CHEMISTRY MAJOR—PLAN A

WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES AND CERTIFICATE OF THE AMERICAN CHEMICAL SOCIETY

Plan A is offered for students who wish to take the A.B. degree in applied arts and sciences and at the same time meet the recommendations of the American Chemical Society and the requirements of most universities for admission to graduate work in chemistry.

Requirements

Prerequisites. Chemistry 1A-1B, 5, 12, and 13; Physics 4A-4B-4C; and Mathematics 50, 51, and 52. (44 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 110A-110B, 111, 112, 113, 150, one unit of 198; and five units of upper division electives in chemistry.

Foreign Language Requirement. (a) Credit in German 8A-8B or (b) completion of German 1 and 2 with a grade of C or better and a demonstrated proficiency in the reading of scientific German as determined by the Chemistry Department in consultation with the Foreign Languages Department.

Minor. Students taking this major must complete a minor in another field.

Outline for Plan A

First year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 1A-1B	5	5
Mathematics 40, 50	5	5
Physics 4A	–	4
Speech Arts 3 (or 4)	–	2
Biology 1 or 3	3	–
English 1A	3	–
P.E. activity	½	½
	16½	16½

Second year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
Physics 4B, 4C	4	4
Mathematics 51, 52	4	4
German 1, 2	4	4
P.E. activity	½	½
	16½	17½

Third year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 110A-110B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 150	–	4
†German 8A-8B	2	2
American institutions	3	3
Health Education 21	2	–
Psychology	–	3
	15	15

Fourth year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 111	–	3
Chemistry 198	1	–
‡Advanced chemistry	2	3
Minor (U.D.)	3	3
Lit., philos., and the arts	5	3
Social science	3	–
Elective	–	1
	14	13

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† German 8A-8B may be omitted by the passing of an examination in the reading of scientific German, if student has grade of C or better in German 1 and 2.

‡ Must include four units lecture and one unit laboratory from courses requiring three full year-courses in chemistry as prerequisites.

CHEMISTRY MAJOR—PLAN B

WITH THE A.B. DEGREE IN APPLIED ARTS AND THE SCIENCES FOR RELATED PROFESSIONS

Plan B is designed for students who do not intend to become professional chemists, but who desire the major in chemistry as part of a liberal education or in preparation for training in a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. The sequence of courses outlined below represents the minimum technical requirement for an A.B. degree in chemistry without the Certificate of the American Chemical Society.

Requirements

Prerequisites. Chemistry 1A-1B, 5, 12, and 13; Physics 2A-2B-3A-3B; and Mathematics 21 and 22. (33 units.) French or German recommended.

Major. A minimum of 24 upper division units in chemistry to include Chemistry 109A-109B, 111, 112, 113, 150; and six units of upper division electives in chemistry.

Minor. Students taking this major in chemistry must complete a minor in another field.

Outline for Plan B

First year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 1A-1B	5	5
Physics 2A-2B	3	3
Physics 3A-3B	1	1
Mathematics 21, 22	3	3
English 1A	3	–
Psychology 1	–	3
P.E. activity	½	½
	15½	15½

Second year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 5	4	–
Chemistry 12	–	4
Chemistry 13	–	1
†French or German 1, 2	4	4
Speech Arts 3 (or 4)	2	–
Health Education 21	–	2
Biology 1 or 3	3	–
Lit., philos., and the arts	–	2
American institutions	3	3
P.E. activity	½	½
	16½	16½

Third year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 109A-109B	3	3
Chemistry 112	4	–
Chemistry 113	1	–
Chemistry 150	–	4
Lit., philos., and the arts	3	3
Electives	4	5
	15	15

Fourth year	*Units* *1st Sem.*	*Units* *2nd Sem.*
Chemistry 111	–	3
Advanced chemistry	3	3
Social science	3	–
Minor (U.D.)	3	3
Electives	6	6
	15	15

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† An equal number of elective units may be substituted for the French or German.

GENERAL MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

The general major, consisting of three fields, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the general major may be obtained at time of registration or in the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

Requirements

Prerequisites. A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

Major. The major consists of 36 upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. If two of the three fields selected are from majors offered only in the College of Arts and Sciences, the general major is governed by the regulations required by that college. If two of the three fields are selected from majors or minors not exclusively in the liberal arts and sciences program, the general major is governed by the regulations in the General Programs in applied arts and sciences. The three fields selected are subject to approval by the Dean of Counseling and Testing.

Minor. A minor is not required with this major.

GEOLOGY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Geology 1A or 2 and 3, Geology 1B, 21, and 24; Chemistry 1A-1B; Engineering 2; Mathematics 22 or 50; and Physics 2A-2B-3A-3B or 4A-4B-4C (39 units.) Recommended: Chemistry 4 or 5, Mathematics 51, and a course in mechanical drawing if not completed in high school. Foreign language is also recommended.

Major. A minimum of 24 upper division units in geology to include Geology 100, 106, 108A, 108B, and 198. For the *geophysics* fields, the following courses should be taken in addition to the major: Mathematics 118A, Physics 103, 120A, and Geology 112.

Minor. A minor is not required with this major.

GEOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

The major consists of basic requirements in the lower and upper division for all students plus the requirements in one of the following options: (a) General Physical or Economic Geology, (b) Paleontology and Stratigraphy, (c) Geophysics, and (d) Geochemistry.

BASIC REQUIREMENTS FOR ALL STUDENTS

Prerequisites. Geology 1A or 2 and 3, 1B, 21, 24; Chemistry 1A-1B; Engineering 2; and Biology 3 or 4. (31 units.) Recommended: A foreign language and a course in mechanical drawing if not completed in high school.

Major. Thirty-six or 42 upper division units in approved courses to include the following: Geology 100, 108A, 108B, 124, 198, and 120 or 121 (19 units); plus the courses in one of the following options:

OPTIONS

In addition to the basic requirements, the student must complete the requirements in one of the following options:

(a) General Physical or Economic Geology

Additional prerequisites. Mathematics 12 or equivalent, 40 and 50; Physics 2A-2B-3A-3B; and Chemistry 4 or 5. (24 units.)

Major (continued). Geology 106; and two of the following courses: Geology 104, 107, 110, 125; and electives approved by the departmental adviser to complete 36 upper division units.

(b) Paleontology and Stratigraphy

Additional prerequisites. Biology 3 or 4 (take the course not previously completed), and Biology 15, or their equivalents; Mathematics 21 and 22; Physics 2A-2B-3A-3B. (20 units.)

Major (continued). Geology 106, 107, and 116; and three courses, one to be chosen from *each* of the following groups: Biology 155 or 160; Biology 110, Zoology 112, or Zoology 119-S; Botany 119-S or Zoology 114. (Botany 51 or Zoology 60 may be substituted for Botany 119-S or Zoology 114, provided that the student has a total of 36 upper division units in the major.)

(c) Geophysics

Additional prerequisites. Mathematics 50, 51, and 52; and Physics 4A-4B-4C. (25 units.)

Major (continued). Mathematics 118A; Physics 101, 103, 105, and 110; Geology 110 and 112. (21 units.) Recommended: Mathematics 118B, Physics 114.

(d) Geochemistry

Additional prerequisites. Chemistry 5 and 12; Physics 4A-4B-4C; Mathematics 50, 51, and 52. (32 units.)

Major (continued). Geology 106, 125; Chemistry 110A, 110B, 111, 155 or 170; and Physics 101. (23 units.)

MINOR

Minor. A minor is not required with this geology major.

HEALTH EDUCATION MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Health Education 65, 90; Zoology 8 and 9; Chemistry 2A-2B; Home Economics 4A; Psychology 12; and Sociology 1. (26 units.)

Major. A minimum of 36 upper division units to include Health Education 145, 150 or 151, 153, 175, 181, 185, 190, 191; Microbiology 101; Education 112 (or equivalent); Physical Education 161; Sociology 135; the remaining units to be selected with approval of the adviser in health education.

Minor. A minor is not required with this major.

HOME ECONOMICS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

The major in home economics is available in three areas of emphasis: (1) General home economics, (2) Food and nutrition, and (3) Human development and family life.

MAJOR WITH EMPHASIS IN GENERAL HOME ECONOMICS

Prerequisites. Home Economics 2, 3, 15, 30, 35, 40, 43, 70, Art 6A, Biology 1, Chemistry 2A-2B, Economics 1A, Physics 5, and Sociology 1. (39 units.)

Major. A minimum of 24 upper division units to include Home Economics 100, 115, 131, 151, 152, 170, 179; and six units selected from Home Economics 102, 105, 116, 117, 118, 119, 143, 171, and 180.

MAJOR WITH EMPHASIS IN FOOD AND NUTRITION

This program is planned for students interested in qualifying professionally in the field of dietetics, institutional food management or commercial home economics. A student who successfully completes this program and receives departmental recommendation is eligible to apply for a year of internship under auspices of the American Dietetic Association. Upon completion of an administrative food clinic or dietetic internship, or a three-year apprenticeship under a qualified dietitian in a recognized hospital, a student is eligible for membership in the American Dietetic Association and recognition as a qualified dietitian. Additional food and nutrition careers include extension service, teaching, business, health agencies and research.

Requirements

Prerequisites. Home Economic 2, 3, 15, 30, 35, 40, 43, 70, Art 6A, Biology 3, Business Administration 1A, Chemistry 2A-2B, Chemistry 3, Economics 1A, Physics 5, Sociology 1, and Zoology 22. (47 units.)

Major. Thirty-three upper division units to include Home Economics 100, 102, 103, 104, 105, 151, 152, 170, 180, Microbiology 101, Psychology 145, and Education 111 or Psychology 130.

MAJOR WITH EMPHASIS IN HUMAN DEVELOPMENT AND FAMILY LIFE

Objectives. (1) to make available for all students general education for marriage, parenthood, and family living which promotes satisfying relations in home and community; (2) to provide professional education for work with children and families in connection with nursery schools, parent education, Home Advising Service, recreation, and community programs such as Girl Scouts and Campfire Girls; (3) to offer preprofessional education for college teaching, research, marriage and family counseling, and community social services for families.

Requirements

Prerequisites. Home Economics 2, 3, 35, 40, 70, Health Education 90, Sociology 1, Psychology 12, Anthropology 1B, and Art 6A or 9. (23-24 units.)

Major. Twenty-five upper division units to include Home Economics 151, 170, 171, 178, 179, Sociology 136, Psychology 145; and six additional units selected with approval of the adviser to meet one of the stated objectives of this program. Courses will be selected from home economics, sociology, psychology, anthropology, and social welfare.

MINOR

Minor. A minor is not required with the home economics major.

INDUSTRIAL ARTS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Industrial Arts 11, to be taken at the beginning of the major; five courses to be selected from Industrial Arts 21, 31, 51, 61, 71, and 81; and Art 6A. (19 units.)

Major. A minimum of 24 upper division units to include nine units in **each of two** of the following fields: industrial drawing, general metalworking, general woodworking, electricity-radio, transportation, or graphic arts; and six units selected from the areas just mentioned, or from handicraft courses, photography courses, or the general shop sequence.

Minor. A minor is not required with this major.

JOURNALISM MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Journalism 50, 51A, and 51B. (9 units.)

Major. A minimum of 24 upper division units in journalism to include Journalism 102, 117, 121, 151, and one year's enrollment in 192 (or 92) in reporting, editing, makeup, or photography, or the equivalent in professional experience.

Minor. A minor is not required with this major; however, several minors are available to increase the scope of training for careers in journalism. Available are those in business administration for students interested in advertising or newspaper management, and in speech arts (broadcasting emphasis) for those interested in radio and television news. Students planning to enter public relations should work out with their advisers a pattern of courses from other departments to supplement requirements for a major in journalism.

LANGUAGE ARTS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

(For students in teacher education)

The major in language arts is offered by the divisions of the Fine Arts, the Humanities, and the Social Sciences.

The language arts major includes courses in the fields of composition, dramatics, journalism, language, literature, radio, television, and speech arts. It is primarily designed for students who plan to enter secondary teaching. (Refer to Professional Curricula in Education.)

This major is limited to students who have completed the following requirements by date of the bachelor's degree:

(1) Admission to teacher education.
(2) At least eight units in professional education courses.
(3) A minor, other than in English or speech arts, selected from one of the teaching minors for secondary teaching. At least 15 units of the minor, to include not less than six units in upper division courses, must be completed for the degree; the remaining units to satisfy requirements for the teaching minor may be completed in the postgraduate year.

Requirements

Prerequisites. Six units selected from Engilsh 50A, 50B, 52A, 52B, 60A, 60B (or a substitution of two upper division courses selected from English 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, or 143B); Journalism 51A; three units from Speech Arts 60A, 60B, 55A, or 55B; and three units in lower division speech arts from the areas of radio and television, selected with approval of the adviser in language arts. (15 units.)

Major. Twenty-seven upper division units to include English 192; English 196 or 191; English 131, 132, 133, or 134; English 117A, 117B, 152A, or 152B; Journalism 152; Speech Arts 108, 159 and 174; Speech Arts 191, 192A or 192B. If six units in the lower division requirements were taken in American literature, the upper division course work in literature should be taken in other areas.

MATHEMATICS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (18 units.) Recommended: Physics 4A-4B-4C.

Major. A minimum of 24 upper division units in mathematics, subject to the approval of the departmental adviser. Six units may be selected from upper division courses in related areas with approval of the adviser.

Minor. A minor is not required with this major.

MEDICAL TECHNOLOGY CURRICULUM

IN APPLIED ARTS AND SCIENCES

The curriculum in medical technology, which prepares for the licensed occupation of Public Health Microbiologist or Clinical Technologist or Bioanalyst, may be obtained by taking the microbiology major with the B.S. degree, but following a modified arrangement of courses. A description of the curriculum follows:

MEDICAL TECHNOLOGY CURRICULUM

Public Health Microbiologist. To fulfill the academic requirements to qualify for the licensing examination given by the State of California Public Health Department for Public Health Microbiologist, the student should include Microbiology 189, in addition to the major in microbiology described below for the B.S. degree, except that he may choose from the following courses sufficient units to complete his major: Biology 103, Microbiology 106, 108, and Zoology 108 and 126.

Clinical Technologist or Bioanalyst. To fulfill the academic requirements to qualify for the licensing examination given by the State either for Clinical Technologist or Bioanalyst, the student should include Microbiology 189 and Physics 2A and 3A, in addition to the major in microbiology described below for the B.S. degree, except that he should substitute Chemistry 114A-114B for Chemistry 115A-115B, and he may choose from the following courses sufficient units to complete the major: Biology 103, Microbiology 106, 108, and Zoology 108 and 126.

MICROBIOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Microbiology 1 (or 101); Biology 3 and 4, or Biology 5; Biology 15; and Chemistry 1A-1B, 4 or 5, and Chemistry 12. (26 units.) Recommended: French or German; Chemistry 13; Mathematics 21 and 22, or 40 and 50; Physics 2A-2B; and Zoology 8 and 9.

Major. A minimum of 36 upper division units in microbiology and approved related fields to include Microbiology 102, 103, 104, 105, 107, and 109; Zoology 128; Chemistry 115A-115B; and electives selected with approval of the adviser. Recommended: Biology 103; Chemistry 109A, 109B; Microbiology 106 and 108.

Minor. A minor is not required with this major.

MUSIC MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

MUSIC CURRICULA

Several plans of study are available with varying degrees of emphasis on performance, history and literature, creative activity, and teaching.

The music curricula are designed to fulfill the needs of all students: (1) those who have professional ambitions in music performance, or seek a foundation for graduate study leading to college or university teaching, (2) those who are preparing for one of the several state teaching credentials with music as either a major or minor, (3) those whose major professional interest is in another department, and are seeking musical study as a minor, and (4) those who are interested in music as an elective study area for the enrichment of their cultural background.

General Basic Requirements

General basic requirements for the A.B. degree with a major in music in applied arts and sciences or in teacher education are as follows:

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class or private piano study for credit.

2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability through class or individual study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for eight semesters for students with the major in applied arts and sciences, or for seven semesters for students in the special secondary credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

Course Requirements

Prerequisites. Music 9A-9B, 10ABCD (may be waived in full or in part by examination), 52, 59A-59B, eight units selected from courses numbered 70-88, and four units in the major instrument. (27-31 units.)

Major. Thirty-one to 33 upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; eight units selected from courses numbered 170-188; four units of courses in the major instrument; four units selected from Music 102A, 102B, 103A, 103B; and the requirements in one of the following fields of emphasis:

(a) Performance. Four units from Music 105, 106, 153, 199.

Students emphasizing performance must appear in a joint recital during the junior year and must present a solo recital during the senior year. The student must pass an audition of the compositions to be performed before the music faculty preceding the recitals.

(b) Music History and Literature. Six units from Music 102A, 102B, 103A, 103B, 199.

During his senior year, the student emphasizing music history and literature is required to organize, prepare program notes, and present two recitals consisting of recorded or "live" performances. Each will deal with representative works of a certain period or composer or with certain periods, composers, or styles to be compared. Such students must pass a preliminary audition of the material to be presented before the music faculty at least one month in advance of each performance.

(c) Creative Activity and Composition. Six units from Music 105, 106, 107, 109B, 199.

The student emphasizing creative activity and composition is required to present a concert of his compositions during the senior year and present the scores of works to be performed to the same music faculty one month in advance of the performance.

Foreign Language Requirement. Twelve units of one foreign language chosen from French, German, or Italian, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Music Department. (Exception: Voice students must substitute four units each of French, German, and Italian, or the equivalent, in lieu of 12 units in one foreign language.)

Minor. A minor is not required with this major.

OUTLINE OF SPECIFIC REQUIREMENTS

First Year	*Units*
Music 9A-9B	6
†Music 10A-10B	0–2
Music organization courses numbered 70-88	4
Major instrument	2
Health Education 21	2
Psychology 1	3
English 1A	3
Speech Arts 3 (or 4)	2
Lit., philos., and the arts	3
Foreign language	4
P.E. activities	1
	30–32

Second Year	*Units*
Music 52	3
†Music 10C-10D	0–2
Music 59A-59B	6
Music organization courses numbered 70-88	4
Major instrument	2
American institutions	6
Foreign language	4
Natural science	3
P.E. activities	1
	29–31

Third Year	*Units*
Music 108	3
Music 146A-146B	2
Music 152A-152B	4
Major instrument	2
Music organization courses numbered 170-188	4
Natural science	6
Social science	3
Foreign language	4
Lit., philos., and the arts	3
	31

Fourth Year	*Units*
Music 109A	2
Four units selected from Music 102A, 102B, 103A, 103B	4
Major instrument	2
Music organization courses numbered 170-188	4
Units from one of the fields of emphasis listed below	4–6
(a) *Performance:* Four units from Music 105, 106, 153, 199.	
(b) *Music History and Literature:* Six units from Music 102AB, 103AB, 199.	
(c) *Composition:* Six units from Music 105, 106, 107, 109B, 199.	
‡Electives	14–16
	30–34

ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188. Some students will be musically prepared to elect courses which may or may not be included in this group. Enrollment by qualified students who wish to elect these courses is encouraged.

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† May be waived in part or in full by examination.

‡ In addition to the upper division courses in the major, the student must have a sufficient number of upper division units to meet the minimum of 40 required for the A.B. degree.

CREDIT FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS

Credit may be allowed for private instruction in music under the following conditions:

1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 7A, 9A, 51, or 151.
2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.
3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.
4. Prior to the start of private study in San Diego State College, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.
5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination.
6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.
7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

NURSING MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

The Department of Nursing is an agency member of the National League for Nursing. It is accredited by the California Board of Nursing Education and Nurse Registration and by the National League for Nursing.

Curriculum

The nursing curriculum consists of a four-year course of study leading to a B.S. degree in nursing. Graduates of the program are eligible to write the examination for licensure as a registered nurse.

The curriculum in nursing requires completion of a minimum of 128 semester units of work as prescribed. Opportunity for clinical laboratory practice is offered in hospitals and health agencies. During the first semester only, all courses are held on the San Diego State campus.

Any student who is regularly admitted to the college may enter the nursing program. Students will normally enter the program in the freshman year, beginning with the fall semester. Students who enter with advanced standing credit from other colleges will be required to complete the remaining requirements in the nursing program for the degree. Graduate nurses from accredited programs in nursing who hold the R.N. license may normally be expected to complete requirements for the degree within three years, subject to satisfactory completion of placement examinations in the professional nursing courses.

Course Requirements

Prerequisites. Nursing 1, 20, 33A-33B, 34A-34B, and 36 (26 units); Chemistry 2A-2B, 3; Microbiology 1; Physics 5; Zoology 8 and 9; Sociology 1 and 35. (31 units.)

Pattern credit in general education will be allowed in Health Education 21 for completion of the entire nursing curriculum; and the lower division zoology may be counted in place of biology for general education purposes. Other general education credit will be allowed as appropriate courses are completed; the remaining three units to be selected from electives in social science or in communication.

Major. Forty-two units to include Nursing 112, 114, 116, 118, 124, 125, 126 (30 units); and the following related courses: Anthropology 154, Psychology 106, 131; and Sociology 140. (12 units.)

Minor. A minor is not required with this major.

OUTLINE OF REQUIREMENTS

First Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 1	1	Nursing 20	3
Chemistry 2A	3	Chemistry 2B	3
Zoology 8	4	Zoology 9	4
English 1A	3	Sociology 1	3
Psychology 1	3	English 2	3
Speech Arts 3 (or G.E. elective)	2	Physical education	½
Physical education	½		
	16½		16½

Second Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 33A	5	Nursing 33B	5
Nursing 34A	5	Nursing 34B	5
Nursing 36	2	Chemistry 3	3
Microbiology 1	4	Sociology 35	3
Physical education	½	Physical education	½
	16½		16½

Third Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 112	5	Nursing 114	5
Physics 5	4	Nursing 116	2
Anthropology 154	3	Psychology 106	3
American Institutions	3	Sociology 140	3
		American Institutions	3
	15		16

Fourth Year

First Semester	*Units*	*Second Semester*	*Units*
Nursing 118	5	Nursing 124	4
Psychology 131	3	Nursing 125	4
Lit., phil., and the arts	3	Nursing 126	5
Electives (complete G.E.)	5	Electives	2
	16		15

PHYSICAL EDUCATION MAJOR—MEN

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Eighteen units to include two units of physical education activity courses, physical Education 61, 63, 64, 72, 74; Zoology 8 and 22.

Major. Twenty-five upper division units to include nine units from physical education courses numbered 141 to 148, inclusive; Physical Education 167, 168, 169, 170A or 170B; and four units selected from courses in health education, physical education, or recreation.

Minor. Students majoring in physical education must complete a minor in another field.

PHYSICAL EDUCATION MAJOR—WOMEN

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Fourteen units to include three units of physical education activity courses, including Physical Education 2A-2B, 3A-3B, and one unit of activity electives; Physical Education 56A-56B, 72; and Zoology 8 and 22.

Major. Twenty-seven upper division units to include Physical Education 151 or 154, 155 or 156, 160, 167, 168, and 12 units from health education and/or physical education courses selected with approval of the department adviser.

Minor. Students majoring in physical education must complete a minor in another field.

PHYSICAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES
(For students in teacher education)

This major in physical science is offered by the Division of the Physical Sciences. The major in physical science is available only to students who have been admitted to teacher education and have completed at least eight units of professional education courses to include Education 100 and 110 by date of degree candidacy.

Requirements

Prerequisites. Astronomy 1 and 9; Chemistry 1A-1B, 5, and 12; Geology 1A or 2 and 3; Mathematics 50 and 51; Physics 4A-4B-4C or 2A-2B-3A-3B; Biology 3 and 4, or Biology 5. (48 to 53 units.)

Major. A minimum of 24 upper division units in the physical and life sciences selected with the approval of the adviser in physical science. Eighteen of the 24 units must be from the following four groups of courses with a minimum of six units from each of two groups and a minimum of three units from each of the other two groups.

Group I: Chemistry 110A-110B or 109A-109B, 112, 115A, 115B, 150.
Group II: Physics 101, 103, 105, 110, 112, 120A, 120B, 122, Physical Science 130.
Group III: Mathematics 117, 119, Physical Science 150. Industrial Arts 185.
Group IV: Biology 110, 111, 158, 161, Botany 112, 114, 119-S, Zoology 114, 117, 119-S, 121, 165.

Minor. A minor is not required with this major for the degree; however, students planning to enter secondary teaching should complete a teaching minor, selected from those approved for secondary teaching, during the undergraduate program. Refer to the section in this catalog on Professional Curricula in Education.

PHYSICS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Physics 4A-4B-4C, 73, and Chemistry 1A-1B, or equivalents. (25 units.)

Major. A minimum of 24 upper division units in physics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 175, and 190 or 198A and 198B. Students who plan to do advanced work in physics should include Physics 106, 114, 151, and 180 to have preparation acceptable for graduate work in physics. Electives must be approved by the departmental adviser.

Foreign Language Requirement. The major in physics with the A.B. degree in applied arts and sciences has the following foreign language requirement: French 2 or German 2 or Russian 2, or their equivalents demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Physics Department.

Students who have been admitted to teacher education who plan to use this major as a preparation for teaching in the secondary schools or junior colleges may substitute Education 100 and 110 for the foreign language requirement.

Minor in Mathematics. A minor in mathematics is required. The minor consists of Mathematics 50, 51, and 52, or their equivalents, Mathematics 119, 170, and three units from Mathematics 121A, 150A, or 175. (Mathematics 104 acceptable for students admitted to teacher education.) Additional mathematics is recommended for students planning graduate work in physics.

PHYSICS MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Physics 4A-4B-4C, 73; Chemistry 1A-1B; Mathematics 50, 51, and 52, or their equivalents. (38 units.)

Major. A minimum of 36-39 upper division units in physics and mathematics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 198A, and 198B; Mathematics 119 and 170. The program planned in consultation with the departmental adviser for this degree must be designed to provide either a four-year terminal program or preparation to enter the graduate program toward a master of science degree. The following courses are required as part of the three options approved under this degree:

Applied Physics. Physics 122 and six units selected from Physics 106, 114, 151, 175, 180, and 190. Electives must be approved by the departmental adviser.

Electronics. Physics 160, 163, 173A, and 173B. Related courses in electronics may be substituted with the approval of the departmental adviser.

Nuclear Physics. Physics 148, 151, and 190.

Minor. A minor is not required with this major for the B.S. degree.

PSYCHOLOGY MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES
(For students in teacher education)

This major is available in applied arts and sciences only to students who have been admitted to and continue in teacher education to time of graduation. The psychology major in liberal arts and sciences is available to all students. (Refer to the section in this catalog on the College of Arts and Sciences for a description of the liberal arts and sciences major; and to Professional Curricula in Education for the teaching major.)

Two plans are provided for the psychology major under the General Programs:

Plan A, designed for those students who wish to extend their liberal arts education in the field of psychology; and

Plan B, designed for those students expecting to pursue the study of psychology beyond the A.B. degree.

Minor. A minor is not required for the degree with the psychology major in applied arts an sciences. Students planning to enter secondary teaching should complete two teaching minors, selected from those approved for secondary teaching, in the undergraduate program. (Refer to Professional Curricula in Education.)

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of his expanding group relations leading to happy and effective family and community living. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Prerequisites. Psychology 5 and 6. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 106, 131, and 145. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 105, 107, 122, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1A-1B; Biology 1, 160; Economics 1A-1B, 102; Health Education 90; Philosophy 1A-1B; Zoology 165; and courses in home economics.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Prerequisites. Psychology 5 and 6; and Zoology 22 and 23. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 104A, 105, 110, 178, and one of the following: 111, 112, 113, or 114; and nine additional units selected from courses in consultation with the departmental adviser.

PUBLIC ADMINISTRATION MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

This major in public administration is offered by the Political Science Department.

Prerequisites. Political Science 71A-71B and Economics 1A-1B. (12 units.) A three-unit course in statistics must be taken either in lower division or as part of the upper division courses in the major.

Major. A minimum of 36 upper division units to include Political Science 140 and 197 or 198; Economics 131; and additional upper division courses to complete the major, selected with approval of the departmental adviser, including a three-unit course in statistics if not taken in the lower division.

Minor. A minor is not required with this major.

PUBLIC PERSONNEL MANAGEMENT MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

This major in public personnel management is offered by the Political Science Department.

Prerequisites. Political Science 71A-71B, Economics 1A-1B, and Psychology 1 and 11. (18 units.)

Major. Thirty-eight upper division units to include Political Science 140, 144, 145, 146, 147, 198; Economics 150, 151, 185; Psychology 104A, 105, 121, and 152. Another political science course may be substituted for Political Science 198 on the basis of individual counseling. Recommended in addition to the major: Business Administration 134, Economics 131, Political Science 142, 143, 155, and Psychology 131.

Minor. A minor is not required with this major.

RADIO AND TELEVISION BROADCASTING MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

This major in radio and television broadcasting is offered by the Speech Arts Department.

The purpose of the curriculum in radio and television broadcasting is to provide training in all phases of radio and television station operation, programing and production in which the personnel of broadcasting stations and/or contributing organizations will be involved in providing a broadcast service. Participants in the entire curriculum will have training in the duties of each department of radio and television stations and their allied businesses. The program of study leading to the B.S. degree is so planned that the emphasis during the first two years is upon general education and backgrounds. The last two years are designed to prepare the student to meet the requirements in the professional and vocational field of his choice.

Requirements

Prerequisites. Speech Arts 56, 80, 81, 82, 83, and 84. (18 units.) Demonstration of proficiency in typing is required.

Major. A minimum of 36 upper division units to include Speech Arts 159, 181, 182, 183, 184, 187, 188; Psychology 122 or Journalism 122; Political Science 122 or Journalism 132; three units from Speech Arts 118A, Business Administration 153, and Journalism 124A-124B; and two units of upper division electives selected with approval of the major adviser.

Minor. A minor is not required with this major.

RECREATION MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Recreation 74 and 80; men must also complete Recreation 63 and women must complete Physical Education 2A, 5A, 5B, and 6. Additional requirements in related fields for all recreation majors: 12 units selected from the fields of art, industrial arts, music, physical education, and speech arts, with a maximum of five units in any one field. (18 units.)

Major. Thirty-six upper division units distributed as follows: Recreation 165, 170A-170B, 184A-184B; Psychology 106 and 145; Education 140; Physical Education 161; Political Science 143; Sociology 148; and six units selected from Sociology 114, 125, 157, 180, 183, and 184. Students should consult with the adviser in recreation for selection and arrangement of courses.

Minor. A minor is not required with this major.

SOCIAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES
(For students in teacher education)

This major in social science is offered by the Division of the Social Sciences.

The major is available in applied arts and sciences only to students who have been admitted to and continue in teacher education to time of graduation. The social science major in liberal arts and sciences is available to all students. (Refer to the section in this catalog on the College of Arts and Sciences for a description of the major in liberal arts and sciences; and to Professional Curricula in Education for a description of the teaching major in social science.)

Requirements

Prerequisites. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (18 units.) Courses recommended for these sequences are as follows: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 90 and 91 or 71A-71B, Sociology 1 and 10.

Major. Thirty upper division units to include 12 units from any field named above; six units from each of two additional fields named above; and six units of electives from any of the fields named above. Courses covering four fields named above, including six units of U.S. history, must be completed either in lower division prerequisites or in the major.

Minor. A minor is not required with this major for the degree.

SPEECH ARTS MAJOR

WITH THE A.B. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. In addition to two units of Speech Arts 3 or 4, a minimum of 13 units of lower division courses, emphasizing (1) theater, (2) broadcasting, (3) public address, or (4) speech and hearing therapy. Courses should be selected in consultation with the adviser unless the student elects to follow one of the patterns of courses recommended in the various areas of emphasis outlined below.

Major. A minimum of 24 upper division units in speech arts to include Speech Arts 100 and at least 12 units in one of the following areas of emphasis: (1) theater, including design for theater and design for television, (2) broadcasting, (3) public address, or (4) speech and hearing pathology. The area of emphasis must be the same in both lower division prerequistes and the major. All courses, including electives to complete the major, must be selected with approval of the adviser, unless the student elects to follow one of the patterns of courses recommended in the various areas of emphasis outlined below.

In addition to course requirements, students electing the area of the theater, including design for theater, must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Minor. A minor is not required with this major.

AREAS OF EMPHASIS

Theater. Lower division: 21 units in speech arts including Speech Arts 1, 5, 8, 11A, 55A or 55B, 56, and one lower division course in broadcasting. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 118A, 154A, 155, 159, and nine units from Speech Arts 108, 118B, 140A, 140B, 145, 152, 154B, 156, 160, 163.

In addition to course requirements, the student must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Design for Theater. Lower division: 18 units in speech arts including Speech Arts 1, 5, 8, 55A or 55B, 56, and three units of speech arts electives. Upper division: 24 upper division units in speech arts to include Speech Arts 100, 140A, 140B, 145, 152, 154A, 154B, and 159. In addition to course requirements, the student must participate in a minimum of five Major Theater performances and three Studio Theater activities prior to graduation. Substitutions for such participation will require departmental approval.

Design for Television. Lower division: 17 units including Speech Arts 1, 56, 81, 83, 84, and Art 14B. Upper division: 24 units including Speech Arts 140A, 140B, 145, 156, 159, 182, 184, and one unit of upper division speech arts electives.

Broadcasting. Lower division: Speech Arts 1 and the lower division prerequisites for the core selected for upper division. Upper division: Speech Arts 100, one of the cores listed below, and upper division speech arts electives, selected with approval of the adviser, to complete a minimum of 24 upper division units. Select one of the following cores:

Core I. Speech Arts 181, with consent of instructor (4 units); and the following prerequisites: Speech Arts 80, 81, 82, and 83. (12 units.)
Core II. Speech Arts 182, with consent of instructor (4 units); and the following prerequisites: Speech Arts 56, 80, 81, and 84. (12 units.)
Core III. Speech Arts 183, with consent of instructor (4 units); and the following prerequisites: Speech Arts 80, 81, 82, 83, and 84. (15 units.)
Core IV. Speech Arts 184, with consent of instructor (4 units); and the following prerequisites: Speech Arts 56, 81, 82, 83, and 84. (15 units.)

Public Address. Lower division: 13 units of speech arts including Speech Arts 1, 60A, 60B, one unit of 61, and Speech Arts 4 (unless taken in general education as a substitute for Speech Arts 3, in which case add three units of speech arts electives). Upper division: 24 upper division units in speech arts including Speech Arts 100, 130, 162, 190, 191, 192A, 192B, and three units of speech arts electives.

Speech and Hearing Pathology. Lower division: Speech Arts 1 and 4 (unless taken in general education as a substitute for Speech Arts 3, in which case add three units of speech arts electives), Speech Arts 70; and a course in statistics (which may be taken as an upper division course as part of the major). Upper division: A minimum of 24 upper division units selected with approval of the adviser from the following courses: Speech Arts 100, 170, 171, 172, 173, 174, 176, 177, 178, 179, 180A, 180B, and an upper division course in statistics, unless taken as a prerequisite in the lower division.

ZOOLOGY MAJOR

WITH THE B.S. DEGREE IN APPLIED ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Zoology 50 and 60; Chemistry 1A-1B; Physics 2A-2B and 3A-3B; and Mathematics 21 or 40. (37 units). Recommended: Mathematics 22 or 50.

Major. A minimum of 36 upper division units in biology, botany, microbiology, and zoology, to include the following: Zoology 100; Zoology 164 or Biology 155; Biology 101, 110; and Microbiology 101. Units to complete the major must be selected with approval of the adviser.

Minor. A minor is not required with this major for the B.S. degree.

DESCRIPTION OF MINORS FOR ALL DEGREES

(For a description of teaching minors, refer to Professonal Curricula in Education)

ACCOUNTING MINOR

The minor in accounting is offered to students who are not majors in the Division of Business Administration. The minor consists of from 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. A total of nine units must be in upper division courses.

AIR SCIENCE MINOR

The minor in air science consists of from 15 to 22 units in air science, ten units of which must be in upper division courses. Veterans may apply credits allowed for military service to clear lower division requirements for the minor.

ANTHROPOLOGY MINOR

The minor in anthropology consists of from 15 to 22 units in anthropology, nine units of which must be in upper division courses (except Anthropology 100A-100B).

ART MINOR

The minor in art consists of from 15 to 22 units in art, six units of which must be in upper division courses.

ASTRONOMY MINOR

The minor in astronomy consists of from 15 to 22 units in astronomy, nine units of which must be in upper division courses.

BANKING AND FINANCE MINOR

The minor in banking and finance is offered by the Department of Business Law and Finance to students who are not majors in the Division of Business Administration. The minor consists of from 16 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and Economics 135.

BIOLOGY MINOR

The minor in biology consists of from 15 to 22 units in biology to include Biology 3 and 4, or the equivalent, and a minimum of nine upper division units in biology selected with approval of the biology adviser.

BOTANY MINOR

The minor in botany consists of from 15 to 22 units in botany, six units of which must be in upper division courses.

BUSINESS EDUCATION MINOR

The minor in business education is offered by the Department of Business Education to students who are not majors in the Division of Business Administration. The minor consists of from 15 to 22 units and must include Business Administration 1A-1B, 71 and 72, or equivalents, and nine units of upper division courses selected with approval of the adviser in this field.

BUSINESS MANAGEMENT MINOR

The minor in business management is offered by the Management Department to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and six to nine additional units of upper division courses approved by the adviser in this field.

CHEMISTRY MINOR

The minor in chemistry consists of Chemistry 1A-1B, 4 or 5, 12 (or equivalents), and six units of upper division courses in chemistry. (24 units.)

COMPARATIVE LITERATURE MINOR

The minor in comparative literature is offered by the English Department. The minor consists of from 15 to 22 units in comparative literature, nine units of which must be in upper division courses.

ECONOMICS MINOR

The minor in economics consists of from 15 to 22 units in economics, nine units of which must be in upper division courses (except Economics 103A-103B).

EMPLOYEE RELATIONS MINOR

The minor in employee relations is offered by the Management Department to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 140, and three to six units of upper division courses approved by the adviser in this field.

ENGINEERING MINOR

The minor in engineering consists of from 15 to 22 units in engineering, nine units of which must be in upper division courses. The courses should follow a logical sequence and must be approved by the chairman of the Engineering Division.

ENGLISH MINOR

The minor in English consists of from 15 to 22 units in English, nine units of which must be in upper division courses.

FRENCH MINOR

The minor in French consists of from 15 to 22 units in French, six units of which must be in upper division courses.

GEOGRAPHY MINOR

The minor in geography consists of from 15 to 22 units in geography, nine units of which must be in upper division courses.

GEOLOGY MINOR

The minor in geology consists of from 15 to 22 units in geology, six units of which must be in upper division courses.

GERMAN MINOR

The minor in German consists of from 15 to 22 units in German, six units of which must be in upper division courses.

HEALTH EDUCATION MINOR

The minor in health education consists of from 15 to 22 units in health education, nine units of which must be in upper division courses approved by the departmental adviser in health education.

HISTORY MINOR

The minor in history consists of from 15 to 22 units in history to include six sequence units in the lower division. At least nine units must be in upper division courses, including a year course.

HOME ECONOMICS MINOR

The minor in home economics consists of 17 units in home economics to include Home Economics 3, 15, 70, 150, and six upper division units of electives in home economics.

INDUSTRIAL ARTS MINOR

The minor in industrial arts consists of 20 units in industrial arts to include Industrial Arts 11, 21, and 123, and one lower division and one upper division course in each of two of the following fields: general woodworking, general metalworking, electricity-radio, transportation, and graphic arts. Electives should be chosen in consultation with the chairman of the Industrial Arts Department.

INSURANCE MINOR

The minor in insurance is offered by the Department of Business Law and Finance to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 120 and either Business Administration 121 or 124.

JOURNALISM MINOR

The minor in journalism consists of from 15 to 22 units in journalism to include Journalism 49, 51A, 51B, 102, and 151.

LIBRARY SCIENCE MINOR

The minor in library science is offered by the Division of Education. The minor consists of from 15 to 22 units in library science, six units of which must be in upper division courses.

MARKETING MINOR

The minor in marketing is offered by the Marketing Department to students who are not majors in the Division of Business Administration. The minor consists of from 17 to 22 units and must include Business Administration 50, Economics 1A-1B, and nine units of upper division courses, including Business Administration 150 and six units selected with approval of the adviser in this field.

MATHEMATICS MINOR

The minor in mathematics consists of from 15 to 22 units in mathematics, six units of which must be in upper division courses. Courses should be selected in consultation with the adviser in mathematics.

MICROBIOLOGY MINOR

The minor in microbiology consists of from 15 to 22 units in microbiology to include Microbiology 1 (or 101), 102, 103, and the remainder of the units to be chosen from Microbiology 104, 105, 106, 107, 108, and 199. Recommended courses to supplement the minor: Zoology 8, Zoology 9 or Biology 101, Chemistry 115A, 115B, or equivalents.

MUSIC MINOR

The general basic requirements for the minor in music are as follows:

(1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted.
(2) Proficiency in piano equivalent to Music 10ABCD.

Coursework in the minor consists of 22 units in music to include the following: In the lower division, Music 9A, 9B, 52, and 59A; in the upper division, Music 151, three units selected from courses numbered 170-188, and four units from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

PHILOSOPHY MINOR

The minor in philosophy consists of from 15 to 22 units in philosophy, nine units of which must be in upper division courses, to include Philosophy 101.

PHYSICAL EDUCATION MINOR

The minor in physical education consists of from 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the adviser in physical education.

PHYSICAL SCIENCE MINOR

The minor in physical science is available only to students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy.

The minor consists of a minimum of 22 units to include three or more units in at least three of the following groups of courses: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; Chemistry 2A-2B or 1A-1B; Geology 2 and 3, or Geology 1A; Physics 2A-2B and 3A-3B, or Physics 4A-4B-4C; and six upper division units from courses in the physical and life sciences.

PHYSICS MINOR

The minor in physics consists of from 15 to 22 units in physics, six units of which must be in upper division courses.

POLITICAL SCIENCE MINOR

The minor in political science consists of from 15 to 22 units in political science, nine units of which must be in upper division courses.

PRODUCTION MANAGEMENT MINOR

The minor in production management is offered by the Management Department to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 135, and three to six units of upper division courses in economics and business administration approved by the adviser in the field of production management.

PSYCHOLOGY MINOR

The minor in psychology consists of from 15 to 22 units in psychology, nine units of which must be in upper division courses.

PUBLIC ADMINISTRATION MINOR

The minor in public administration is offered by the Political Science Department. The minor is available to students majoring in fields other than political science or public administration. The minor consists of from 15 to 22 units to include Political Science 71A-71B, 140, and six units of upper division courses selected from Political Science 197, 198, or other upper division political science course approved by the adviser in public administration.

RADIO AND TELEVISION BROADCASTING MINOR

The minor in radio and television broadcasting is offered by the Speech Arts Department. The minor consists of from 18 to 25 units in speech arts selected from one of the following cores:

Core I. Speech Arts 181 and two upper division units of speech arts electives, with consent of the core instructor; and the following prerequisites: Speech Arts 80, 81, 82, and 83. (Total, 18 units.)

Core II. Speech Arts 182 and two upper division units of speech arts electives, with consent of the core instructor; and the following prerequisites: Speech Arts 56, 80, 81, and 84. (Total, 18 units.)

Core III. Speech Arts 183 with consent of the core instructor, 187; and the following prerequisites: Speech Arts 80, 81, 82, 83, and 84. (Total, 22 units.)

Core IV. Speech Arts 184 with consent of the core instructor, 159, 187; and the following prerequisites: Speech Arts 56, 81, 82, 83, and 84. (Total, 25 units.)

REAL ESTATE MINOR

The minor in real estate is offered by the Department of Business Law and Finance to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 170 and six units to be selected with approval of the adviser in this field.

RECREATION MINOR

The minor in recreation consists of from 15 to 22 units to include the following courses: Lower division: two units of physical education activity courses; Recreation 74; and two units chosen from the fields of art, dance, drama, or music. Upper division: Recreation 165, 170A-170B, and 184A or 184B. Recommended: Physical Education 161. Consultation with the chairman of the Recreation Department is advised.

RUSSIAN MINOR

The minor in Russian consists of from 15 to 22 units in Russian, six units of which must be in upper division courses.

SECRETARIAL MANAGEMENT MINOR

The minor in secretarial management is offered by the Department of Business Education to students who are not majors in the Division of Business Administration. For admission to the minor program, the student must demonstrate competency in typing equal to that required in Business Administration 72. The minor consists of from 15 to 22 units in business administration to include Business Administration 75A-75B, or equivalent, and a minimum of 12 units in upper division courses to include Business Administration 183A-183B, 185, 186, and 188.

SOCIOLOGY MINOR

The minor in sociology consists of from 15 to 22 units in sociology, nine units of which must be in upper division courses (except Sociology 102.)

SPANISH MINOR

The minor in Spanish consists of from 15 to 22 units in Spanish, six units of which must be in upper division courses.

SPEECH ARTS MINOR

The minor in speech arts consists of from 15 to 22 units in speech arts, nine units of which must be in upper division courses. The courses must be selected from one of the following fields of emphasis: theater, design for theater, design for television, broadcasting, public address, or speech and hearing pathology.

ZOOLOGY MINOR

The minor in zoology consists of from 15 to 22 units in zoology, six units of which must be in upper division courses.

LIBERAL ARTS AND SCIENCES

COLLEGE OF ARTS AND SCIENCES

COLLEGE OF ARTS AND SCIENCES

A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

PURPOSE OF THE PROGRAM

The purpose of a four-year collegiate program in liberal arts and sciences is to develop the student's intellectual interests and mental and physical fitness, and to increase his fund of information, his ability to think accurately, and his judgment, and thus to make him adaptable to various and changing life situations. A liberal education provides a foundation useful for many occupations and especially for graduate work leading into the professions; it is even more valuable as a preparation for assuming civic leadership and for attaining a balanced intellectual and emotional life. Hence the program in liberal arts and sciences aims to introduce college students to the major domains of human knowledge:

1. The natural sciences, physical and biological, for an understanding of the world and the complicated forces of life.
2. The social studies, for developing a knowledge and appreciation of the institutions and complex influences in society and of the privileges and obligations of citizenship.
3. The tools of critical understanding and the integration of knowledge—language, logic, mathematics, psychology, philosophy.
4. The sources of aesthetic enjoyment—literature, the fine arts, music—for understanding, enjoyment, and, if possible, creation of the beautiful.

REQUIREMENTS FOR THE DEGREE

The student must complete the following requirements for the A.B. degree in liberal arts and sciences. Refer to the section in this catalog on Graduation Requirements for more complete information.

1. A minimum of 124 semester units. No more than 48 units in one department may be counted in meeting the 124 units.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 45 upper division units.
5. One major, and one minor if required by the department offering the major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U. S. Constitution; and California state and local government.
9. Distribution of course work to fulfill the pattern below; this pattern fulfills the general education requirements for the degree.

THE MAJOR

The liberal arts and sciences major consists of a pattern of prescribed upper division courses totaling not less than 24 units. Also required as preparation for the major are lower division prerequisite and related courses, a requirement in foreign language, and a minor, if required by the department offering the major. Majors, which are described later in this section of the catalog, are offered in the following fields:

LIST OF MAJORS AND CURRICULA FOR THE A.B. DEGREE
IN LIBERAL ARTS AND SCIENCES

† Majors

Anthropology
Art
Astronomy
Biology
Botany
Chemistry
Economics
English
French
General major
Geography
Geology
German
History
Latin-American studies
Mathematics
Microbiology
Philosophy
Physics
Political science
Psychology
Social science
Social welfare
Sociology
Spanish
Zoology

† Curricula

Africa and the Middle East
American studies
European studies
Humanities

THE MINOR

A minor may be required by the department offering the major. In departments not requiring a minor, the minor is optional with the student. A minor generally consists of from 15 to 22 units, at least six units of which must be in upper division courses. Minors may be selected from those listed below.

These minors are described in the section of this catalog on the General Programs in applied arts and sciences.

LIST OF MINORS

Accounting
Air science
Anthropology
Art
Astronomy
Banking and finance
Biology
Botany
Business education
Business management
Chemistry
Comparative literature
Economics
Employee relations
Engineering
English
French
Geography
Geology
German
Health education
History
Home economics
Industrial arts
Insurance
Journalism
Library science
Marketing
Mathematics
Microbiology
Music
Philosophy
Physical education
Physical science
Physics
Political science
Production management
Psychology
Public administration
Radio and television broadcasting
Real estate
Recreation
Russian
Secretarial management
Sociology
Spanish
Speech arts
Zoology

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† For a limited time, the majors and curricula listed above (which are not also available with the degree in applied arts and sciences) may be taken under the regulations for graduation in the General Programs in applied arts and sciences, as follows: For the academic year beginning September 1963, available only to students transferring to this college with 60 units or more; September 1964, available only to students transferring with 90 units or more; September 1965, available only in the College of Arts and Sciences.

GENERAL EDUCATION AND DISTRIBUTION OF COURSES

The degree in liberal arts and sciences requires, in addition to a major field, a distribution of course work to be selected according to the following pattern. Completion of the pattern of courses will satisfy the requirements in general education. No single course may be used to meet more than one requirement in the following pattern of distribution. For prerequisites to certain courses, refer to the description of courses in the section of this catalog on Announcement of Courses.

DISTRIBUTION OF COURSES

Minimum units

A. Natural Science

1. A combination of two or more courses to complete a minimum of nine units fulfilling: 9
   (a) Not less than three units of Biology 3, 4, or 5;
   (b) Not less than three units from Astronomy 1 and 9; Chemistry 1A or 2A; Geology 1A or 2 and 3; Physical Science 1 and 4, or 5 and 4; Physics 4A, or 2A and 3A, or 5.
   (c) If, in meeting the above requirements, the student has not completed at least nine units, the remaining units of the total requirement of nine may be satisfied by choosing a course, with or without laboratory, from the following: Geography 1 or 3; or any course in astronomy, biology, botany, chemistry, geology, microbiology, oceanography, physical science, physics, or zoology.
2. Mathematics 3
   This requirement may be satisfied by Mathematics 18 or a higher numbered course.

B. Social Science

1. American Institutions 6
   Political Science 71A and 71B or Political Science 115 and 142 or 143 or 148; or History 17A and 17B or History 172A and 172B. (May be met in whole or in part by examination or by various options. Refer to the section of this catalog on Graduation Requirements, American Institutions, for an outline of options. If the entire requirement is met by examination, add three units to the requirement in Social Science, below.)
2. Social Science 6
   Two 3-unit courses, choosing from Anthropology 1A or 1B (but not both), Economics 1A, Geography 2, Sociology 1. If the entire requirement in American Institutions is met by examination, add a second semester to one of the above (but not Geography 1 or 3), or add a 3-unit course in political science.

C. The Humanities and Fine Arts

1. A one-year course in western civilization 6
   Choose either History 4A-4B or English 52A-52B or Philosophy 101, 103.
2. Six units in literature, philosophy, or the history or appreciation of art or music 6
   To be taken in a department or departments other than that in which the requirement in western civilization was met. Applicable courses: Art 5, 50A, 50B, 51; Music 51, 52, 151; any course in the Department of Philosophy; any course in literature in the departments of English and Foreign Languages and in comparative literature.
3. At least three units under the Humanities and Fine Arts or elsewhere must be in literature or philosophy.

	Minimum units
D. Other	
1. Foreign language as required by the major department	0–12
The foreign language requirement of a knowledge of a language other than one's native tongue may be met by the satisfactory completion of courses through 12 units at the college level or by written examination.	
2. Communication	
Oral—Speech Arts 3 or 4	2–3
Written—English 1A-1B	6
(If excused from all or part of the requirement in written communication, an equal number of units in literature.)	
3. Psychology 1	3
4. Health Education 21	2
5. Physical education activity courses (Four semesters required.)	2
TOTAL:	51–64
Courses to complete the major, the minor (if any), and electives	73–60
UNITS REQUIRED FOR GRADUATION:	124

DESCRIPTION OF MAJORS AND CURRICULA

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

AFRICA AND THE MIDDLE EAST

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The curriculum in Africa and the Middle East is an area of emphasis in the social science major. This curriculum is offered by the Division of the Social Sciences.

Prerequisites. History 4A-4B or Political Science 90 and 91; Economics 1A-1B; Anthropology 1B; and Geography 1. (18 units.)

Major. Thirty upper division units from the departments of anthropology, economics, geography, history, political science, and sociology, chosen with the consent of the adviser and including not less than 12 units in one department and six units in each of two other departments. Required courses in this curriculum include: History 157, 158B; Geography 125 and 130; Political Science 188; Economics 119; and Anthropology 152. Additional recommended courses to make the minimum of 12 units in one social science field are as follows: History 156, 158A or 121A-121B; Geography 150 and 151; Political Science 170A-170B and 165; Economics 102, 190, and 196; Anthropology 153, 154, and 156.

Foreign Language Requirement. French 1, 2, 3, 4 (or equivalent competence demonstrated by examination). Recommended: Comparative Literature 52A-52B.

Minor. A minor is not required with this curriculum.

AMERICAN STUDIES

IN LIBERAL ARTS AND SCIENCES

The American Studies Curriculum, offered by the Division of the Humanities, is designed for the undergraduate student who wishes to earn a liberal arts degree with a concentration in American studies. The program stresses the American heritage, in both its uniqueness and its debts to other societies. The curriculum centers in American history and literature, and includes relevant fields, outside as well as inside the Division of the Humanities.

Major and Minor Combinations. A departmental major is required in history (with concentration in American history) or in English (with concentration in American literature). A minor, to be approved by the faculty adviser in American Studies, is required, and may be taken in any department of the college which offers an appropriate grouping of courses. Knowledge of one foreign language is required, as specified in the departmental major.

Within the scope of the American Studies program, the English-Social Science or the Social Science-English major-minor combination, as defined by the state for a general secondary teaching credential, may be arranged in consultation with the adviser for the program.

Course Requirements and Recommendations. Arrangement of courses in the American Studies curriculum must conform to the following pattern:

	Units
I. Forty-two units in courses on American culture, with from 12 to 18 units in each of the following fields:	42
(a) History of the United States (b) American literature and philosophy (c) The United States in the social sciences of anthropology, economics, geography, political science, and sociology Courses will be selected from approved lists, with approval of the adviser in American Studies.	
II. Fifteen units of courses in the foreign backgrounds of American civilization, as recorded and interpreted by history, literature, philosophy, the arts, and the social sciences	15
Courses will be selected from approved lists, with approval of the faculty adviser in American Studies.	
III. Humanities 198, Integration in the Humanities	3
Total course requirements	60

The student will file with the Evaluations Office a master plan approved by the faculty adviser in American Studies.

ANTHROPOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Anthropology 1A-1B and 3. (9 units.)

Major. A minimum of 24 upper division units in anthropology to include Anthropology 102, 103, 152, 154, and 167. (100A-100B may not be counted in the minimal upper division course requirements.) Courses should be selected in consultation with an adviser.

In addition to the major, supporting courses in a field of emphasis should be chosen from the following groups:

Archaeology: Art, geography, geology, history.
Physical anthropology: Psychology, statistics, zoology.
Museum work: Art, education, psychology.
Ethnology and social anthropology: History, languages, psychology, political science, social science.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Department of Sociology-Anthropology.

Minor. Students majoring in anthropology must complete a minor in another field to be approved by an adviser in anthropology.

ART MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Art A, B, 5, 6A, 6B, 15A, 16A, 50A, 50B, 52A, 52B. (22 units.)

Major. A minimum of 27 upper division units to include Art 100A, 100B, 115A, 116A, 156, 190; Philosophy 136; and eleven units to be chosen in consultation with the adviser from the following: Art 106A, 106B, 112A, 112B, 117A-B-C-D, 120A, 120B, 153, 154, 155, and 199.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Art Department.

Minor. A minor is not required with this major.

ASTRONOMY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Astronomy 9, 10, 50, 51; and Physics 4A-4B-4C. (20 units.) Recommended: Chemistry 1A-1B.

Major. A minimum of 24 upper division units to include Astronomy 104A-104B, 112A-112B, 198A-198B; and nine units of physics to include Physics 101, 103, and 105. Recommended: Physics 106, 151, 175; and Astronomy 103, 105, and 110.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Astronomy-Physical Science Department.

Minor in Mathematics. Students majoring in astronomy must complete a minor in mathematics to include Mathematics 50, 51, 52, 119, and three units of upper division mathematics electives. (Mathematics 175 is recommended.)

BIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 60; Chemistry 1A-1B; Physics 2A-2B; and Mathematics 21 or 40. (43 units.) Recommended: Mathematics 22 or 50.

Major. Twenty-seven upper division units in biology, botany, microbiology, and zoology, to include the following: Biology 101, 110, 155, 161; Microbiology 101; and eight units of upper division electives to be selected with the approval of the adviser.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Biology Department.

Minor. A minor is not required with this major.

BOTANY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Botany 50 and 51; Chemistry 1A-1B; Physics 2A-2B; and Mathematics 21 or 40. (35 units.)

Major. A minimum of 24 upper division units in botany, microbiology, and biology, to include Biology 101, 110, 155; Microbiology 101; Botany 107 and 114.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Botany Department.

Minor. A minor is not required with this major.

CHEMISTRY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

This major is designed for students desiring emphasis on chemistry as part of a liberal arts and sciences education or as preparation for entering a related profession. By appropriate choice of electives, graduates can meet the requirements for admission to medical schools. By careful choice of courses and either appropriate high school preparation (with trigonometry and two or three years of German, or with Advanced Placement credit) or the equivalent in additional college courses (taking the required courses in chemistry, physics, and mathematics as specified in Plan A, chemistry major in the General Programs), students may complete the requirements for both the liberal arts and sciences degree and the major in chemistry with the Certificate of the American Chemical Society, as preparation for graduate work in chemistry. (See also the chemistry majors described in the section of this catalog on the General Programs.)

Requirements

Prerequisites. Chemistry 1A-1B, 5, 12, and 13; Physics 2A-2B and 3A-3B; and Mathematics 21 and 22. (33 units.)

Major. A minimum of 24 upper division units in chemistry to include Chemistry 109A-109B, 111, 112, 113, 150; and six units of upper division electives in chemistry.

Foreign Language Requirement. Twelve units of a foreign language (French or German preferred), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Chemistry Department.

Minor. Students majoring in chemistry with the A.B. degree in liberal arts and sciences must complete a minor in another field.

ECONOMICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Economics 1A-1B, 2; and at least six units from Business Administration 1A, 1B, Mathematics 21 and higher numbered courses, or Philosophy 1A, 1B, and 20. (15 units.) Students planning careers in law, business, or government are advised to take at least one semester of accounting.

Major. A minimum of 24 upper division units in economics to include Economics 100A-100B. Six of the 24 units may be in related fields to be selected with approval of the Departmental Academic Requirements Committee. (Economics 103A-103B may not be used to fulfill minimal upper division requirements in the major.)

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Department of Economics.

Minor. Students majoring in economics must complete a minor in another field.

ENGLISH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Major. A minimum of 24 upper division units in English, selected with the approval of the departmental adviser, and including at least three units of Shakespeare (117A or 117B), six units of British literature before 1800 exclusive of Shakespeare (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151), and six units of British literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

Selection of Courses

Prospective majors of sophomore standing may, with the consent of the course instructor and subject to general college regulations (see Credit for Upper Division Courses in the section of the catalog on General Regulations), substitute six units of upper division electives for six units of lower division work, such upper division units to be selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 126A, 126B, 143A, 143B.

Students of junior or senior standing may substitute for any deficiencies in lower division requirements in English (except English 1A and 1B) an equivalent number of units of upper division courses selected from the following: English 101A, 101B, 116A, 116B, 118A, 118B, 119A, 119B, 120A, 120B, 126A, 126B, 143A, 143B, 151.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the English Department.

Minor. A minor is not required with this major.

EUROPEAN STUDIES

IN LIBERAL ARTS AND SCIENCES

Specialization in European Studies beyond the requirements for a departmental liberal arts degree is available within the Division of the Humanities. The largest groupings of courses are in the departments of Foreign Languages and History and in Comparative Literature, and supporting courses are offered regularly by other departments and other divisions of the college. The extended curriculum in European Studies provides (1) the basis for a superior understanding of European civilization, (2) a foundation for graduate work in the major departments, and (3) preparation for residence in continental Europe.

Major and Minor Combinations. A departmental major is required in history (with a concentration upon European history), or in French, German, or Spanish. A minor is required in comparative literature, economics, English, French, geography, German, political science, or Spanish. The major and minor must not both be taken in foreign languages, but a reading and speaking knowledge of at least one European language besides English is required.

Course Requirements. A minimum of 70 units, including a departmental major as described above and one or two departmental minors, selected with the approval of a faculty adviser for the Eureopean Studies curriculum (not less than 42 units must be in upper division). The distribution of courses must include the following:

(a) Literature (no fewer than 12 units)
(b) European history (no fewer than 12 units)
(c) European geography (no fewer than 6 units)
(d) Foreign languages (no fewer than 16 units, or the equivalent, in one language)
(e) Humanities 198, Integration of the Humanities (3 units)

FRENCH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. French 1, 2, 3, 4, 10, and 11. (16 units.) Recommended: History 4A-4B.

Major. A minimum of 24 upper division units in French to include French 101A-101B, 102A-102B, and 12 units in the period literature of the language.

Minor. Students majoring in French must complete a minor in another field to be approved by the departmental adviser in French.

GENERAL MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The general major, consisting of three fields, instead of the usual major-minor pattern, offers a general type of education leading to objectives not otherwise provided in the regular programs of the college. Assistance in arranging the general major may be obtained at time of registration or at the Personnel Services Center in the Administration Building. The plan for the major must be cleared with the Evaluations Office for appropriate use of courses, approved by the department chairman in each of the three fields selected, and finally approved by the Dean of Counseling and Testing. Forms are provided for this purpose.

Prerequisites. A minimum of a year course in each of the three fields selected in the major must be completed in the lower division as foundation for upper division courses.

Major. Thirty-six upper division units chosen from three fields, with not more than 15 nor fewer than nine units from any one field. At least two of the fields must be selected from the majors in liberal arts and sciences listed above; the third field may be selected from the same list or from other major or minor fields in the college curriculum, subject to approval of the Dean of Counseling and Testing.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the general major adviser.

Minor. A minor is not required with this major.

GEOGRAPHY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Geography 1, 2, 3, 60; and Geology 1A. (16 units.) Geology 1A may be counted as part of a geology minor if desired.

Major. A minimum of 24 upper division units in geography to include Geography 100, 101, 180, 181A, and 12 units of electives in geography, no fewer than six units nor more than nine units of which shall be from among the courses numbered 120 to 130, inclusive.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, Spanish, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Geography Department.

Minor. Students majoring in geography must complete a minor in another field to be approved by the major adviser.

GEOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites: Geology 1A, or 2 and 3, Geology 1B, 21, and 24; Chemistry 1A-1B; Engineering 2; Mathematics 22 or 50; and Physics 2A-2B and 3A-3B or 4A-4B-4C. (39-45 units.) Recommended: Chemistry 4 or 5, Mathematics 51 and a course in mechanical drawing if not completed in high school.

Major. A minimum of 24 upper division units in geology to include Geology 100, 106, 108A-108B, 198, and seven units of electives in geology. For the *geophysics* fields, the following courses should be taken in addition to the major: Mathematics 118A, Physics 103, 120A, and Geology 112.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Geology Department.

Minor. A minor is not required with this major.

GERMAN MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. German 1, 2, 3, 4, 10, and 11. (16 units.)

Major. A minimum of 24 upper division units in German to include German 101A-101B, 102A-102B, and 12 units in the period literature of the language.

Minor. Students majoring in German must complete a minor in another field to be approved by the departmental adviser in German.

HISTORY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. History 4A-4B or 8A-8B. (6 units.) Recommended: Both 4A-4B and 8A-8B; and Political Science 71A-71B or 90 and 91, or Economics 1A-1B. No freshman shall enroll in more than one lower division course in history during any one semester without permission of the major adviser.

Major. A minimum of 24 upper division units in history to include History 198 and a minimum of a year of concentration in **each of three** of the following fields: (a) Ancient and Medieval; (b) Modern Europe; (c) United States; (d) Latin America; (e) South and East Asia; (f) Africa and the Middle East. These courses must be selected under the guidance of the chairman of the department.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the History Department.

Minor. A minor is not required with this major.

HUMANITIES

IN LIBERAL ARTS AND SCIENCES

The Humanities curriculum is offered by the Division of the Humanities.

The intensive program in humanities provides a course of study which gives a comprehensive view of the development of contemporary civilization, with practice in critical thinking and careful expression. The program encourages extensive reading in history, literature, and philosophy, with oral and written discussion.

Specific Requirements and Recommendations

I. A major in one of the departments of the Division of the Humanities, consisting of 24 upper division units and the required introductory courses, plus a minor if required by the major department. Knowledge of one foreign language is required, as specified in the departmental major.

II. Twelve or more upper division units in related fields, selected with approval of the faculty adviser for the curriculum. (May include courses in the minor, if appropriate.)

III. The adviser will assist the student who undertakes this program to distribute his course work among the following areas:
   (a) The Origins of Western Civilization: Greek and Roman, Hebrew, Medieval.
   (b) Western Civilization, 1500-1900; Continental, British, and American.
   (c) Contemporary Civilization.
   (d) Type courses concerned with more than one period; comparative study of Asian Civilization; linguistics and composition; theory.

IV. Humanities 198, Integration in the Humanities (3 units).

The student will file with the Evaluations Office a master plan approved by the adviser for the humanities curriculum.

LATIN-AMERICAN STUDIES MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in Latin-American Studies is offered by the Division of the Social Sciences. The major provides (1) a basis for a more effective understanding of the cultures and governments of the western hemisphere; and (2) a basic education and training for a business or professional career involving understanding of Latin-America.

High school students preparing to enter this program should include in the high school course of study three years of study in one foreign language, preferably Spanish or Portuguese. Proficiency in either or both of these languages is indispensable to a successful career in this area of study.

Requirements

Prerequisites. Six units in **each of three** of the following groups of courses: Anthropology 1B and 3; Economics 1A-1B; Geography 1 and 2; History 8A-8B; and Political Science 90 and 91. (18 units.)

Major. A minimum of 30 upper division units from the fields named above, to include 12 units from one field, six units from each of two additional fields, and six units from any of the fields. Courses strongly recommended: Anthropology 162, Economics 195, Geography 123 and 124, History 161 and 162, Political Science 175 and 182. Recommended selection of courses to complete the major include Anthropology 151B, Economics 190, Geography 121, History 165A-165B, and Political Science 170A-170B and 171.

Recommended courses in addition to the major: Art 51, Comparative Literature 104A-104B, and Spanish 141 or Humanities 147.

Foreign Language Requirement. A reading knowledge of Spanish or Portuguese. Proficiency may be demonstrated either by 12 units of course work in the language or by an examination administered by the Department of Foreign Languages in consultation with the representative of the division for this major.

Minor. A minor is not required with this major.

MATHEMATICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Mathematics 40 (unless exempted by examination); Mathematics 50, 51, and 52. (13-18 units.) Recommended: Physics 4A-4B-4C.

Major. A minimum of 24 upper division units in mathematics, subject to the approval of the departmental adviser. Six units may be selected from upper division courses in related areas with approval of the adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Mathematics Department.

Minor. A minor is not required with this major.

MICROBIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Microbiology 1 (or 101); Biology 5 and 15 (or equivalent); Chemistry 1A-1B, 4 or 5, and 12; and Mathematics 21 or 40. (33-35 units.) Recommended: Chemistry 13; Mathematics 22 or 50; Physics 2A-2B-3A-3B; Zoology 8 and 9.

Major. A minimum of 24 upper division units in microbiology and approved related fields, to include Microbiology 102, 103, 104, 107; Chemistry 115A-115B. Recommended: Microbiology 105, 106 or Biology 101, Microbiology 108; Biology 103, 110, 155; Chemistry 109A, 109B.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Microbiology Department.

Minor. A minor is not required with this major.

PHILOSOPHY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Nine lower division units in philosophy.

Major. A minimum of 24 upper division units in philosophy to include Philosophy 101, 102, and 103. Six of the 24 units may be in related fields to be selected with approval of the departmental adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge, demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Philosophy Department. Selection of French or German is strongly recommended.

Minor. A minor is not required with this major.

PHYSICS MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Physics 4A-4B-4C, 73, and Chemistry 1A-1B, or their equivalents. (25 units.)

Major. A minimum of 24 upper division units in physics to include Physics 101, 105, 110, 112, 120A, 120B, 170, 175, and 190 or 198A and 198B. Students who plan to do advanced work in physics should include Physics 106, 114, 151, and 180 to have preparation acceptable for graduate work in physics. Electives must be approved by the departmental adviser.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Physics Department.

Minor in Mathematics. Students majoring in physics must complete a minor in mathematics to include Mathematics 50, 51, and 52, or their equivalents, Mathematics 119, 170, and three units from Mathematics 121A, 150A, or 175. (Mathematics 104 is acceptable for students admitted to teacher education.) Additional mathematics is recommended for students planning graduate work in physics.

POLITICAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisite. Political Science 71A-71B or 90 and 91. (6 units.)

Major. A minimum of 24 upper division units to include (a) three units in Political Science 197 or 198 and (b) 21 upper division units in political science distributed among at least three of the groups listed below, provided that at least three units shall be taken in Group I.

Group I, Political Theory. Courses numbered 100 to 114.
Group II, Politics. Courses numbered 115 to 129.
Group III, Public Law. Courses numbered 130 to 139.
Group IV, Public Administration. Courses numbered 140 to 164.
Group V, International Relations. Courses numbered 165 to 179.
Group VI, Comparative Government. Courses numbered 180 to 195.

Students majoring in political science are advised to become as familiar as possible with related social science fields.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Political Science Department.

Minor. Students majoring in political science must complete a minor in another field to be approved by the chairman of the major department.

PSYCHOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Two plans are provided for the major in psychology: **Plan A** for those students who wish to extend their liberal arts education in the field of psychology; and **Plan B** for those students expecting to pursue the study of psychology beyond the A.B. degree.

Plan A

Plan A is for a nonprofessional major in psychology and is designed to provide the student with a greater understanding of his expanding group relations leading to happy and effective family and community living. The recommended pattern of courses for this program is not designed to facilitate graduate and professional study in psychology.

Prerequisites. Psychology 5 and 6. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in psychology to include Psychology 106, 131, and 145. It is expected that each student under Plan A will select, with the assistance of his adviser, a pattern of courses in line with his particular objectives in pursuing Plan A. For most students in Plan A, the following courses will be found particularly helpful: Psychology 105, 107, 122, 150, and 152.

To facilitate the purpose of Plan A the following courses in other departments are recommended as electives: Anthropology 1A-1B; Biology 1, 160; Economics 1A-1B, 102; Health Education 90; Philosophy 1A-1B; Zoology 165; and courses in home economics.

Plan B

The purpose of Plan B is to facilitate the specific preparation of those students who wish to pursue graduate and professional preparation in clinical, industrial and personnel, social, and theoretical-experimental psychology.

Prerequisites. Psychology 5 and 6; and Zoology 22 and 23. Recommended courses in related fields: six units in biology and/or zoology; three units in philosophy; and six units in anthropology and/or sociology.

Major. A minimum of 24 upper division units in phychology to include Psychology 104A, 105, 110, 178, and one of the following: 111, 112, 113, or 114; and nine additional units selected from courses in consultation with the departmental adviser.

Foreign Language Requirement. Students with this major in psychology under either Plan A or Plan B must complete 12 units of a foreign language, or have equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Psychology Department.

Minor. A minor is not required with this major in psychology under either Plan A or Plan B.

SOCIAL SCIENCE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in social science is offered by the Division of the Social Sciences.

Prerequisites. A six-unit sequence in each of three of the following fields: (1) anthropology, (2) economics, (3) geography, (4) history, (5) political science, and (6) sociology. (18 units.) Courses recommended for these sequences are as follows: Anthropology 1A-1B, Economics 1A-1B, Geography 1 and 2, History 4A-4B or 8A-8B, Political Science 90 and 91 or 71A-71B, Sociology 1 and 10.

Major. Thirty upper division units to include 12 units from any field named above; six units from each of two additional fields named above; and six units of electives from any of the fields named above. Courses covering four fields named above, including six units of U.S. history, must be completed either in lower division prerequisites or in the major.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Division of Social Sciences.

Minor. A minor is not required with this major.

Curriculum in Africa and the Middle East

The social science major may be taken with an emphasis on Africa and the Middle East. For a description of this program, refer to Africa and the Middle East in the section above.

SOCIAL WELFARE MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

The major in social welfare is offered by the Department of Sociology-Anthropology.

Prerequisites. Sociology 1, 10, and 60; Economics 1A-1B; Political Science 71A-71B; and Psychology 6 or 12. (24 units.) Recommended: Biology 3 and courses from anthropology and speech arts.

Major. Thirty-six upper division units distributed as follows: Sociology 140; Social Welfare 100, 180, 182, 189; six units selected from Social Welfare 183, 184, 185, 186, 187, and Sociology 110, 113 (or 114), 121, 125, 136, and 157; Psychology 150 and six units selected from Psychology 106 (not to be selected if Psychology 6 has been taken), 107, 109, 131 (not to be selected if Psychology 12 has been taken), 151, and 152; three units selected from Political Science 105, 112, 122, 140, 142, 143, and 147. Recommended: Zoology 165 and courses from anthropology. Students should consult with the adviser in social welfare for selection and arrangement of courses.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Sociology-Anthropology Department.

Minor. A minor is not required with this major.

SOCIOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Sociology 1, 10, and 60. (9 units.) Advanced students in junior and senior years entering the major may take Sociology 102 in place of Sociology 1, but may not use 102 to fulfill minimal upper division requirements in the sociology major.

Major. A minimum of 24 upper division units in sociology to include Sociology 100, 101, 122, and 140.

Foreign Language Requirement. Twelve units of a foreign language, or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Sociology-Anthropology Department.

Minor. Students majoring in sociology must complete a minor in another field.

SPANISH MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Spanish 1, 2, 3, 4, 10, and 11. (16 units.)

Major. A minimum of 24 upper division units in Spanish to include Spanish 101A-101B, 102A-102B, and 12 units of courses in the period literature of the language.

Minor. Students majoring in Spanish must complete a minor in another field approved by the departmental adviser in Spanish.

ZOOLOGY MAJOR

WITH THE A.B. DEGREE IN LIBERAL ARTS AND SCIENCES

Prerequisites. Biology 5 and 15; Zoology 50 and 60; Chemistry 1A-1B; Physics 2A-2B-3A-3B; and Mathematics 21 or 40. (37 units.) Recommended: Mathematics 22 or 50.

Major. A minimum of 24 upper division units in zoology, biology, and related fields, to include Zoology 100 or Biology 105; Zoology 164 or Biology 155; Biology 101, 110; and Microbiology 101. Recommended: Zoology 106.

Foreign Language Requirement. Twelve units of a foreign language (preferably German, French, or Russian), or equivalent knowledge demonstrated by a test of reading knowledge administered by the Department of Foreign Languages in consultation with the Zoology Department.

Minor. A minor is not required with this major.

PROFESSIONAL CURRICULA

BUSINESS ADMINISTRATION
EDUCATION
ENGINEERING

PROFESSIONAL CURRICULA IN BUSINESS ADMINISTRATION

DEPARTMENTAL ORGANIZATION

Five departments comprise the Division of Business Administration: Accounting, Business Law and Finance, Management, Marketing, and Business Education. Each department offers its separate majors and minors.

ACCREDITATION

The Division of Business Administration is a member of the American Association of Collegiate Schools of Business.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the Division of Business Administration. Its chief purpose is to facilitate research by faculty and students in the areas of economics and business. For further information, refer to the section in this catalog on Research Facilities, under Special Programs and Facilities.

COURSES IN BUSINESS ADMINISTRATION

Courses in business administration are listed and described in the section of this catalog on Announcement of Courses.

THE MASTER'S DEGREE

The master of arts degree for teaching service with a concentration in business education and the master of science degree in business administration with concentrations in eight areas are offered. For further information, refer to the Graduate Bulletin and to the section in this catalog on the Graduate Division.

DEPARTMENTAL MAJORS AND MINORS

The following listed majors and minors are offered by each of the five departments in the Division of Business Administration:

DEPARTMENT OF ACCOUNTING

Major in Accounting with the B. S. degree

Minor in Accounting

DEPARTMENT OF BUSINESS LAW AND FINANCE

Majors with the B.S. degree in the following:
- Banking and Finance
- Insurance
- Real Estate

Minors in the following:
- Banking and Finance
- Insurance
- Real Estate

DEPARTMENT OF MANAGEMENT

Major in Management with the B.S. degree

Minors in the following:
- Business Management
- Employee Relations
- Production Management

Certificate in Industrial Management (nondegree), offered in Extension Program

DEPARTMENT OF MARKETING

Major in Marketing with the B.S. degree

Minor in Marketing

DEPARTMENT OF BUSINESS EDUCATION

Majors with the B.S. degree in the following:
Business Education
Office Management
Secretarial Management

Minors in the following:
Business Education
Secretarial Management

Certificate in Office Management (non-degree), offered in Extension Program

GRADUATION REQUIREMENTS

The student must complete the requirements listed below for the bachelor's degree. (Refer to the section of this catalog on Graduation Requirements for specific information.)

1. A minimum of 128 semester units for the B.S. degree.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units for the B.S. degree.
5. One major.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education exclusive of courses in the major.

THE MAJOR

Each major in business administration consists of a pattern of prescribed upper division courses. The minimum number of units required is stated in the description of each major.

Also required as preparation for the major are the lower division prerequisite courses. Some majors require additional courses in a prescribed pattern in areas other than the major.

Business administration majors are not required to complete a minor for the degree.

For information on general education and other degree requirements, refer to the section of this catalog on Graduation Requirements.

DEPARTMENT OF ACCOUNTING

ACCOUNTING MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 21. (25 units.)

Major. A minimum of 36 upper division units to include Business Administration 100, 101, 102, 106, 127, 132, 150, and Economics 100A or 100B; nine units selected from the following:

Accounting: Business Administration 107, 108, 112, 114, 115, 116, 119
Economics: Economics 135, 170
Finance, Management, Marketing, and Business Education: Any upper division course may be selected in these areas, but only one course may be taken in each department.

Professional Curricula In Business Administration

In addition to courses in the major and in general education, 12 upper division elective units outside of business administration and economics are required. (Any courses in one foreign language may be taken to satisfy this requirement.)

ACCOUNTING MINOR

The minor in accounting is offered to students who are not majors in the Division of Business Administration. The minor consists of from 15 to 22 units in accounting, of which Business Administration 1A-1B and 100 must be included. A total of nine units must be in upper division courses.

DEPARTMENT OF BUSINESS LAW AND FINANCE

Majors

BANKING AND FINANCE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

All students majoring in banking and finance must meet the requirements listed below in (1) the major, and (2) pattern requirements outside the Department of Economics and the Division of Business Administration:

(1) REQUIREMENTS WITHIN THE MAJOR FIELD

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, Economics 1A-1B, Economics 2 or Mathematics 12, and Mathematics 21. (25 units.)

Major. A minimum of 36 upper division units to include Business Administration 100, 127, 128, 129, 130, 132, and 150; Economics 100A, 100B, and 135; the remaining five units to be selected with consent of the adviser.

(2) PATTERN REQUIREMENTS OUTSIDE THE DEPARTMENT OF ECONOMICS AND DIVISION OF BUSINESS ADMINISTRATION

Eight to nine units in one of the departments of the Divisions of the Life, Physical, or Social Sciences (except Economics) as listed below in (a); and eight to nine units in one of the departments of the Divisions of the Humanities or Fine Arts as listed in (b) below. A minimum of 17 units is required.

Students in the AFROTC program may substitute the four-year program of lower and upper division air science courses for the above requirement.

No courses taken to satisfy the requirements in (1) may be used to satisfy any other requirement of (2) or of general education.

(a) Divisions of the Life, Physical, and Social Sciences. Courses to be selected with consent of the adviser from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

(b) Divisions of the Humanities and Fine Arts. Courses to be selected with consent of the adviser from all upper division courses and Art 5, 50A, 50B, 51, 52A, 52B, Music 52, and Speech Arts 4, 60A, 60B, 61, and 64, or from all courses in foreign languages, but not less than eight units in one language.

INSURANCE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, Economics 1A-1B, and Economics 2 or Mathematics 12. (22 units.)

Major. A minimum of 36 upper division units to include Business Administration 120, 121, 124, 125, 127 or Economics 135, Business Administration 132 and 150; and 15 units selected from Business Administration 106, 107, 118, 127, 128, 131, 140, 170, 171, 173, 174; Economics 111, 131, 135, 138, 142, 170, 171, and 185. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

REAL ESTATE MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in real estate is offered primarily for the student desiring to acquire a core of essential knowledge of the principles of real estate and urban land economics which will prepare him to engage in professional real estate activities or general business. The student in the Division of Business Administration seeking a career in real estate development, land management, real estate finance, insurance, and related fields will have the opportunity to select courses in economics, political science, sociology, and other areas so as to develop a broad educational background in this field of study.

Prerequisites. Business Administration 1A-1B, 30A-30B, 80, Economics 1A-1B, and Economics 2 or Mathematics 12. (22 units.)

Major. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 140, 150, 170, 171, 173, 174, Economics 138; and nine units selected from Business Administration 100, 106, 107, 121, 153, 172, Economics 142, 187, and Political Science 160 (this latter course being recommended as a part of the nine units for most majors). In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

Minors

BANKING AND FINANCE MINOR

A minor in banking and finance is offered to students who are not majors in the Division of Business Administration. The minor consists of from 16 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and Economics 135.

INSURANCE MINOR

A minor in insurance is offered to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 120 and either Business Administraton 121 or 124.

REAL ESTATE MINOR

A minor in real estate is offered to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, 30A-30B, and nine upper division units, including Business Administration 170 and six units to be selected with approval of the adviser in this field.

DEPARTMENT OF MANAGEMENT

MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major in management with the B.S. degree is offered in three areas of concentration: business management, employee relations, and production management.

Students majoring in management must complete all three of the following requirements: (1) Requirements in the professional curriculum of the major, (2) requirements in one of the areas of concentration of the major, and (3) in addition to the major, pattern requirements outside the Department of Economics and the Division of Business Administration.

(1) PROFESSIONAL CURRICULUM WITHIN THE MAJOR FIELD

Prerequisites. Business Administration 1A-1B, 30A, 80; Economics 1A-1B; Mathematics 12, 21, and 22. (25 units.)

Major. Business Administration 102, 127, 131, 132, 134, 135, 140, 145, 149, 150, Economics 100A, and Mathematics 130A. (36 units.)

(2) AREAS OF CONCENTRATION WITHIN THE MAJOR FIELD

Select one area:

(a) Business management. Twelve units to include one upper division course selected from any four of the following fields: accounting, business law, economics, employee relations, finance, insurance, marketing, production management, purchasing, and real estate.

(b) Employee relations. (1) At least six units from Business Administration 141, 142, and 143; and (2) six units from Economics 150, 151, 152, Psychology 105, 121, 124, 133, and Sociology 120. (12 units.)

(c) Production Management. (1) Business Administration 136 and either 137 or 138; and (2) six units from Business Administration 162, Economics 107, Philosophy 121, 122, Psychology 121, 124. (12 units.)

(3) PATTERN REQUIREMENTS OUTSIDE THE DEPARTMENT OF ECONOMICS AND THE DIVISION OF BUSINESS ADMINISTRATION

Eight or nine units in one of the departments of the Divisions of the Life Sciences, Physical Sciences, or Social Sciences (except Economics) as listed in (a) below; and eight or nine units in one of the departments of the Divisions of the Humanities or Fine Arts as listed in (b) below.

Students in the AFROTC program may substitute the four-year program of lower and upper division air science courses for this 16 to 18-unit requirement.

No courses taken to satisfy these requirements in (1) may be used to satisfy any other requirement of (2) and (3) or of general education.

(a) Divisions of Life, Physical, and Social Sciences. Courses to be selected, with consent of adviser, from all upper division courses (except in economics) and Chemistry 1A-1B, 4 or 5, and Physics 4A-4B-4C.

(b) Divisions of the Humanities and Fine Arts. Courses to be selected, with consent of adviser, from all upper division courses and Art 5, 50A, 50B, 51, 52A-52B. Music 52, and Speech Arts 4, 60A-60B, 61, and 64. In foreign languages, all courses, except that at least eight units must be taken in one language.

Minors

BUSINESS MANAGEMENT MINOR

A minor in business management is offered to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, and six to nine additional units of upper division courses approved by the adviser in this field.

EMPLOYEE RELATIONS MINOR

A minor in employee relations is offered to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 140, and three to six units of upper division courses approved by the adviser in this field.

PRODUCTION MANAGEMENT MINOR

A minor in production management is offered to students who are not majors in the Division of Business Administration. The minor consists of from 19 to 22 units and must include Business Administration 1A-1B, Economics 1A-1B, Business Administration 132, 135, and three to six units of upper division courses approved by the adviser in this field.

Certificate

CERTIFICATE IN INDUSTRIAL MANAGEMENT

(Offered in the Extension Courses Program)

For a description of this certificate program, refer to the section of this catalog on Preprofessional and Nondegree Curricula.

DEPARTMENT OF MARKETING

MARKETING MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

The major is planned so that the student will attain a comprehensive, rigorous knowledge of marketing. It is important to the student that he integrate this professional knowledge with the mainstream of culture and education. Sixty-two units of professional courses are required for the major in marketing. The student is urged to plan the additional 66 units to include not only the general education requirements but also exploration of as many subject fields in other departments of the college as possible, preferably concentrating his work in a limited number of fields and in upper division courses. Consultation with the adviser is recommended.

Requirements

Prerequisites. Business Administration 1A-1B, 30A-30B, 50, 80; Economics 1A-1B; and either Economics 2 or Mathematics 12. (24 units.)

Major. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 140, 150, 151, and 157; 12 units selected from Business Administration 102, 152, 153, 154, 161, 162, 163, 164, 165; and six units selected from business administration and/or economics courses with the approval of the marketing adviser. In addition to courses in the major and in general education, three upper division elective units outside of business administration or economics are required.

MARKETING MINOR

A minor in marketing is offered to students who are not majors in the Division of Business Administration. The minor consists of from 17 to 22 units and must include Business Administration 50, Economics 1A-1B, and nine units of upper division courses, including Business Administration 150 and six units selected with approval of the adviser in this field.

BUSINESS EDUCATION DEPARTMENT

Majors

BUSINESS EDUCATION MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

This major in business education with the B.S. degree is primarily for the student who is planning to take the general secondary credential in the postgraduate year with business education as the teaching major.

The student must complete (1) the prerequisites to the major, (2) the basic requirements in the major, and (3) the requirements in **two subfields** of the major, of which **accounting** or **secretarial** must be one, for a minimum of 36 upper division units.

Requirements

(1) Prerequisites. Business Administration 1A-1B, 30A-30B, 72 or equivalent, 73, 80; Economics 1A-1B; and Economics 2 or Mathematics 12. (28 units.)

(2) Major—basic requirements. Business Administration 127 or Economics 135; Business Administration 132, 150, 182, 185, 186, 188, 189, and three units of electives in business administration selected with approval of the adviser. (24 units.)

(3) Major—subfield requirements. Complete the courses in two of the following subfields, of which accounting or secretarial must be one:

Accounting. Eight units selected from Business Administration 100, 102, or 106.

Secretarial. Prerequisite: Business Administration 75B or equivalent; and in the major: Business Administration 183A-183B.

Business management. Six upper division units selected with approval of the adviser in business education.

Merchandising. Prerequisite: Business Administration 50; and in the major: Business Administration 160 and 181. (Students who plan to meet the requirement of the State Department of Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a distributive occupation and four semester units to be selected from Business Administration 152, 153, and 159.)

OFFICE MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Prerequisites. Business Administration 1A-1B, 30A-30B, 71 or equivalent, 73, 80; Economics 1A-1B; and Economics 2 or Mathematics 12. (28 units.)

Major. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 184, 185, 186, 188; and 18 units selected from Business Administration 100, 102, 140, 142, 196, Economics 170, and Psychology 121.

SECRETARIAL MANAGEMENT MAJOR

WITH THE B.S. DEGREE IN BUSINESS ADMINISTRATION

Prerequisites. Business Administration 1A-1B, 30A-30B, 72 or equivalent, 73, 75A-75B, 80; Economics 1A-1B; and Economics 2 or Mathematics 12. (34 units.)

Major. A minimum of 36 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 183A, 183B, 184, 185, 186, 188; and 12 units selected from Business Administration 100, 102, 140, 142, 196, Economics 170, and Psychology 121.

Minors

BUSINESS EDUCATION MINOR

A minor in business education is offered to students who are not majors in the Division of Business Administration. The minor consists of from 15 to 22 units and must include Business Administration 1A-1B, 71 and 72, or equivalents, and nine units of upper division courses selected with approval of the adviser in this field.

SECRETARIAL MANAGEMENT MINOR

A minor in secretarial management is offered to students who are not majors in the Division of Business Administration. The minor consists of from 15 to 22 units. The student must demonstrate competency equal to that required in Business Administration 72 before he can be admitted to the minor program. The minor must include Business Administration 75A-75B, or their equivalent, in the lower division and 12 units in the upper division to include Business Administration 183A-183B, 185, 186, and 188.

Certificate

CERTIFICATE IN OFFICE MANAGEMENT

(Offered in the Extension Courses Program)

For a description of this certificate program, refer to the section of this catalog on Preprofessional and Nondegree Curricula.

PROFESSIONAL CURRICULA IN
EDUCATION

ACCREDITATION

San Diego State and the Division of Education are fully accredited by the California State Board of Education and the National Council for Accreditation of Teacher Education.

BUREAU OF EDUCATIONAL RESEARCH

The Bureau of Educational Research, within the Division of Education, is administered by a Coordinator and his assistant. The objective of the bureau is to improve the quality of education through research by (1) fostering research on the part of individual faculty members who wish to make use of its services, (2) cooperating in community and service studies, (3) serving faculty graduate advisers as a resource in research design and techniques, and (4) engaging in the dissemination of information about education.

COURSES IN EDUCATION

Courses in education are described in the section of this catalog on Announcement of Courses.

DEGREES

MASTER'S DEGREE

The master of arts degree with a major in education with concentrations in nine areas is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

BACHELOR'S DEGREE

Graduation Requirements. Requirements for graduation with a bachelor's degree are outlined in the section of this catalog on Graduation Requirements. Students taking a degree and credential concurrently must complete requirements for both the degree and the credential.

Bachelor of Arts Degree. The bachelor of arts degree in education is offered with one of the following credentials: general elementary, kindergarten-primary, junior high school, or special secondary.

For a statement of changes in credential programs which become effective after July 1, 1963, refer to the section below on Credentials after July 1, 1963.

Bachelor of Education Degree. The bachelor of education degree is currently offered with the general elementary or kindergarten-primary credential to teachers holding a provisional credential in either of these areas.

Bachelor of Vocational Education Degree. The bachelor of vocational education degree is currently offered to vocational teachers of California who are recommended by the Board of Examiners for Vocational Education.

CREDENTIALS AFTER JULY 1, 1963

Legislation, enacted in 1961, changes the types of credentials for school service and the requirements for them. Specific requirements will be established by the State Board of Education by July 1, 1963. (Pending legislation would change effective date to January 1, 1964.)

ELIGIBILITY AND EXEMPTIONS

Students, who on July 1, 1963, have completed two years of college and are enrolled in a teacher education program in any institution of higher learning approved by the California State Board of Education, may complete the credential program in which they are then enrolled. All other students must meet requirements for the new credentials. The elementary teaching specialization requires five years of preparation, but has a provision for beginning teaching after four years. The secondary specialization requires five years of preparation. These credentials and their authorization are listed below.

LIST OF CREDENTIALS (AFTER JULY 1, 1963)

Credential	**School Service Authorized**
(1) A standard teaching credential with specialization in:	
(a) Elementary teaching	Teach kindergarten and grades one through nine
(b) Secondary teaching	Teach major and minor in grades seven through twelve
(c) Junior College teaching	Teach major in junior college
(2) A standard designated subjects credential	Teach trade or technical courses at grade levels specified on the credential
(3) A standard designated services credential	Perform pupil personnel services or health services as specified on the credential
(4) A standard supervision credential	Serve as supervisor, consultant, or other intermediate administrative position including school principal
(5) A standard administration credential	Serve as a district superintendent or in intermediate level administrative positions, including those services authorized by the standard supervision credential

EDUCATION SUPPLEMENT TO THE CATALOG

Official regulations governing programs leading to the credentials named above are pending action by the State Board of Education. Descriptions of programs reflecting these regulations are, therefore, not included in this catalog. Requirements in general education, credential majors and minors, and professional education are described in an education supplement to this catalog. Write to the Registrar, San Diego State College, for a free copy of the supplement: Teacher Education Curricula, 1963-1964.

CREDENTIALS CURRENTLY AVAILABLE

ELIGIBILITY

Programs leading to the credentials listed below are currently available. Students entering teacher education after July 1, 1963, must meet new requirements to become effective at that time. (Refer to the list of new credentials outlined above.)

Anyone wishing to teach or provide other types of professional service in the public schools of California must hold a credential issued by the State Department of Education. Several kinds of credentials are available, each authorizing certain specific kinds of service. A student who completes the prescribed program at San Diego State College for any of the credentials listed below will be recommended by the college to the State Department of Education for the credential.

LIST OF CREDENTIALS CURRENTLY AVAILABLE

Credential	School Service Authorized
General Elementary	Kindergarten through grade 8.
Kindergarten-Primary	Kindergarten through grade 3.
Junior High School A special program is offered in combination with the General Elementary Credential	All subjects in grades 7, 8, and 9 in all elementary or secondary schools.
Special Secondary in Art	Art in all grades of the public schools.
Special Secondary in Business Education	Business education subjects in all grades of the public schools.
Special Secondary in Homemaking Education	Homemaking education subjects in all grades of the public schools.
Special Secondary in Industrial Arts	Industrial arts in all grades of the public schools.
Special Secondary in Music	Music in all grades of the public schools.
Special Secondary in Physical Education	Physical education in all grades of the public schools.
Special Secondary in Speech Arts	Speech in all grades of the public schools.
Health and Development	Serve as supervisor of health.
Teaching Exceptional Children	To teach mentally retarded or speech correction and lipreading in remedial classes in all grades of the public schools.
General Secondary	All subjects in the public schools in grades 7 through 14.
General Pupil Personnel Services	To serve in the areas of psychology, psychometry, counseling, or child welfare and attendance in all grades of the public schools.
Junior College	Serve as a teacher in junior college.
Administration in Elementary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in elementary schools.
Administration in Secondary Education	To serve as superintendent, deputy superintendent, assistant superintendent, principal, vice-principal, and supervisor of instruction in secondary schools.
Supervision	To supervise instruction in the field or on the grade level for which a regular valid basic credential is held.

CREDENTIAL INFORMATION IN THE FOLLOWING SECTION

(1) General nature of all credentials and combinations of certain credentials.
(2) Admission to teacher education.
(3) Basic program of study for all credentials.
(4) Description of teaching majors and minors.

COMBINATION OF CREDENTIALS

(Not available to students entering teacher education after July 1, 1963.)

Students who seek more than one teaching credential must complete in full the curriculum for each, with only such exceptions as are indicated in the statement of requirements.

GENERAL ELEMENTARY AND JUNIOR HIGH SCHOOL CREDENTIALS

A combined program leading to the junior high school and general elementary credentials is available. Entering students interested in such a program should request an adviser for the junior high school credential.

A combination of the general elementary credential and the junior high school credential may be secured by completing the requirements for the elementary school credential and the following additional requirements:

(a) A junior high school teaching major plus a teaching minor to be approved by the Coordinator of Secondary Education.
(b) Education 121 in the major field or equivalent elementary education course.
(c) Three units of directed teaching, or equivalent, in a junior high school.
(d) Education 100 or 102.

JUNIOR HIGH SCHOOL AND SPECIAL SECONDARY CREDENTIALS

A combination of the junior high school credential and a special secondary credential may be secured by completing the requirements for the special secondary credential and the following additional requirements:

(a) A junior high school teaching minor approved by the Coordinator of Secondary Education.
(b) Education 121 in the junior high school teaching minor.
(c) Three units of student teaching in the junior high school teaching minor.

CREDENTIALS FOR GENERAL ELEMENTARY AND TEACHING EXCEPTIONAL CHILDREN

The general elementary credential and the credential for teaching exceptional children in either area of specialization, speech correction and lipreading in remedial classes, or teaching of the mentally retarded, may be combined by careful scheduling of all requirements for both credentials. It will probably be necessary to attend one or more summer school sessions in order to complete the requirements for the combined credentials within a four-year period.

ADMISSION TO TEACHER EDUCATION

APPLICATION FOR ADMISSION

Students who plan to earn credentials for teaching or other school service should apply for admission to teacher education during either the second semester of the freshman year or the first semester of the sophomore year. Students entering the college at the end of the sophomore year will apply at the beginning of the junior year. Application may be made at a special meeting held each semester. (For date and place of this meeting, refer to the calendar in this catalog.) No courses in education may be taken until admission is granted; any exception to this rule must have the approval of the appropriate admissions committee.

STANDARDS FOR ADMISSION

The standards for admission to teacher education are different from those for admission to the college; therefore, admission to the college does not guarantee that the student will be admitted to teacher education. The committees on admission to teacher education will base their decision upon the following factors:

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the use of English and satisfactory ability in arithmetic, handwriting, reading and spelling as indicated by scores on fundamentals tests for those applying for elementary education. (See the college calendar for dates of these tests which should be taken in the second semester of the freshman year.)

3. Satisfactory scores on a general culture test, English proficiency test, and mathematics competency test, for junior high school, special secondary, health and development, general secondary or junior college credentials. (See the college calendar for dates of these tests, which should be taken in the second semester of the freshmen year.)
4. Satisfactory quality of speech and voice control.
5. Results of the college health examination given for teaching credential candidates.
6. Interviews with representatives of the Admissions Committee and, for secondary education only, with a representative of the department in which the student is a major. The Admissions Committee will base its evaluation upon the following factors established by the State Board of Education: intelligence, scholarship, professional aptitude, personality and character, speech and language usage, and many-sided interests.
7. Satisfactory grade point averages on the first two years or more of a given curriculum or its equivalent and on all subsequent work taken for the credential. Minimum grade point averages are indicated below:
   a. Elementary, kindergarten-primary, special secondary credentials, 2.20.
   b. Junior high school credential, 2.50.
   c. Health and development credential, 2.20.
   d. General secondary credential: all subjects, 2.50, and major field, 2.75.
   e. Junior college credential, 2.50.
8. For administration, supervision, and general pupil personnel services credential candidates, a satisfactory grade point average (minimum 2.75) on all work applicable to that credential, exclusive of the work applied to the basic credential.
9. For general secondary credential candidates, an official evaluation and program approved by the authorized departmental representative in the student's major field and by a representative in secondary education.

TRANSFER STUDENTS

Students who have completed two or more semesters of work in another college, upon transferring to San Diego State College, should make application for admission to teacher education as soon as they enroll in the college. Transfer students admitted to the college with either upper division or graduate standing should take the necessary tests for admission to teacher education given during the testing and advising program before the beginning of their first semester at the college. (See academic calendar for dates.)

TRANSFER STUDENTS WITH PROVISIONAL CREDENTIALS

Teachers with a provisional credential who are teaching and working concurrently toward a regular credential may have a program designed to fit their background. According to present law, teachers on provisional credentials are required to embark upon a program with an accredited institution leading to a degree and/or a credential before the provisional credential can be renewed. Before the renewal can be certified by San Diego State College, the student must be fully matriculated in the college and must complete admission to teacher education. (Refer to the requirements stated above for admission to teacher education.) Also, at the time of renewal, successful teaching experience must be verified. For an evaluation of college credit completed to date, make formal application at the Evaluations Office, Administration Building, San Diego State College. For additional details, see the Coordinator of Elementary Education or the Coordinator of Secondary Education.

ADVANCED STANDING IN TEACHER EDUCATION

A student transferring into San Diego State College with advanced standing must complete a minimum of six units of professional education work in residence at San Diego State College before recommendation for a credential, regardless of extent of education work already completed elsewhere. Whenever a transfer student has had teaching experience, the college requires that a statement from the employer(s) be filed with the Evaluations Office.

EVALUATION OF CREDITS

After an interval of five years, courses in education are re-evaluated and subject to reduction in credit, in light of such new requirements as may have been put into effect and changes in educational procedures. Students formerly in attendance will not be considered to be working in the curriculum until an evaluation and statement of credit has been secured from the Evaluations Office. All courses taken either at this college or elsewhere must be approved by an official adviser in order to be credited toward meeting credential requirements or pattern requirements for a degree.

BACHELOR OF ARTS DEGREE WITH CREDENTIAL

CHANGE IN DEGREE REQUIREMENTS, JULY 1, 1963

Students entering elementary education after July 1, 1963, must complete a major and a minor in subjects commonly taught in the public schools; a major in education will not be avaliable.

GRADUATION REQUIREMENTS

The student must complete requirements for the credential which will be earned with the degree and the additional graduation requirements listed below. (For more complete information, refer to the section of this catalog on Graduation Requirements.)

1. A minimum of 124 semester units.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units attempted at this college, and (c) all units in the major. (Refer to the section above on Admission to Teacher Education, Standards for Admission, for higher grade point averages required for a credential.)
4. At least 40 upper division units, to include all courses.
5. One major, and a minor if required by the major field (plus the credential requirements in professional education).
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education exclusive of courses in the major including lower division prerequisites, unless otherwise provided in the description of the major.

A.B. DEGREE IN EDUCATION
WITH THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

This program will not be available to students entering teacher education after July 1, 1963.

Currently available are the general elementary and kindergarten-primary credentials to be earned concurrently with the A.B. degree in education. All students in elementary education must complete requirements for the general elementary credential. Those who wish to specialize further in kindergarten-primary education may elect courses leading to the additional credential.

REQUIREMENTS

The student must complete the following requirements:

(1) 45 units of general education.
(2) Prerequisites for the degree and the credential.
(3) A major in elementary education.
(4) A teaching minor selected from those listed below.

For a description of general education requirements, refer to the section of this catalog on Graduation Requirements.

For requirements in the major in elementary education and in the minors, refer to the Description of Teaching Majors and Minors, outlined later in this section of the catalog.

Minors for the Credentials

Minor for Both Credentials. Minors must be selected from those listed below. These minors are described later in this section of the catalog.

- English
- French
- General science
- German
- Industrial arts
- Library science
- Mathematics
- Physical education
- Russian
- Social science
- Spanish
- Speech arts

Students taking the general elementary credential in combination with a special secondary credential may use the major in the special secondary field for the minor in the elementary field.

ACCELERATED CREDENTIAL PROGRAM FOR STUDENTS WITH FOUR-YEAR DEGREES

Students with A.B. or B.S. degrees are eligible for an accelerated program leading to a general elementary and/or kindergarten-primary credential. The normal three-semester sequence in professional education is condensed into two semesters. Requirements for admission to teacher education are the same as for undergraduates. For additional information see the Coordinator of Elementary Education.

A.B. DEGREE IN EDUCATION
WITH THE JUNIOR HIGH SCHOOL CREDENTIAL

This program is not available to students entering teacher education after July 1, 1963.

Under current regulations, the junior high school credential may be earned with the A.B. degree in education. The student must complete 45 units of general education and the following: (1) a teaching major, (2) a minor approved by the Coordinator of Secondary Education, and (3) a pattern of 24 units of professional courses in teacher education. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

TEACHING MAJORS AND MINORS

The teaching major consists of a pattern of prescribed courses totaling not less than 24 units, 18 units of which must be in upper division courses, with the exception of the major in general science. Courses in the major may not be used to meet the 45 units of general education requirements.

Teaching majors and minors are described later in this section of the catalog.

Teaching Major. Teaching majors are offered in the following:

- English
- French
- General science
- German
- Mathematics
- Social science
- Spanish

Minors. Minors must be selected with approval of the Coordinator of Secondary Education.

PROFESSIONAL COURSES IN TEACHER EDUCATION

Professional courses in teacher education include 24 units in the following: Education 100, 110, 120, 121 (methods in the major and minor fields), 180, plus Health Education 151.

A.B. DEGREE IN EDUCATION

WITH THE SPECIAL SECONDARY CREDENTIAL

This program is not available to students entering teacher education after July 1, 1963.

Under current regulations, the special secondary credential may be earned with the A.B. degree in education in one of the fields named in the credential. In addition to 45 units of general education courses, the student must complete one teaching major and the pattern of 22 units of professional courses in teacher education. (For a description of general education and other graduation requirements, refer to the section of this catalog on Graduation Requirements.)

TEACHING MAJORS

The teaching major consists of a prescribed pattern of courses totaling not less than 24 upper division units.

Teaching majors are described later in this section of the catalog. Selection of a major must be made from the following list of majors:

Art
Business education
Homemaking education
Industrial arts
Music
Physical education
Speech arts

PROFESSIONAL COURSES IN TEACHER EDUCATION

Professional courses in teacher education consist of 22 upper division units to include the following: Education 100, 110, 120, 121 (methods in the major), 180, and Health Education 151. Certain of the majors require additional professional education courses. These are listed in each case along with the requirements for the major.

BACHELOR OF EDUCATION DEGREE

B.E. DEGREE WITH THE GENERAL ELEMENTARY OR KINDERGARTEN-PRIMARY CREDENTIAL

Provisions for the granting of the bachelor of education degree are made in the California Administrative Code, Chapter 5, Section 40502. In addition to the outline below, the student must complete the graduation requirements listed in the section of this catalog on Graduation Requirements.

PURPOSE OF THE DEGREE

The purpose of this degree is to increase the professional competence of the individual as an elementary teacher in the California public schools. Through the curriculum provided, the applicant is guided into those learning experiences which best meets his cultural and professional needs on the basis of his previous preparation and of the services he is to render.

ELIGIBILITY FOR CANDIDACY

To be eligible to enter the program for this degree at San Diego State College the applicant must obtain full admission to the college, be admitted to the teacher education program of the college, must have completed a minimum of 60 semester units of standard college work acceptable toward the degree, and must hold a California provisional kindergarten-primary or provisional general elementary credential.

RESIDENCE REQUIREMENTS

A minimum of 24 semester units shall be earned in course work at San Diego State College (exclusive of credit-by-examination). Twelve of the 24 units must be in residence courses and must be secured after the candidate has earned at least 90 semester units.

REQUIREMENTS FOR THE DEGREE

The candidate must complete a four-year college course of 124 semester units as defined by the college, must meet the grade requirements established by the college for a bachelor's degree and credential, and must include in his program the following requirements:

(1) General education .... 45 units

Courses in general education must be distributed as follows:

- (a) Social sciences 9
  Shall include required instruction in American history, institutions and ideals; U. S. Constitution; and California state and local governments; and courses selected from the fields of anthropology, economics, geography, history, political science, sociology, and similar fields. Courses must be selected from two or more of these fields.
- (b) Natural sciences 9
  Shall include the fields of astronomy, biology, botany, chemistry, geology, physics, physiology, zoology, and similar fields. At least one course must be selected from a physical science and one from a life science.
- (c) Literature, philosophy or the arts 6
  Courses in fine and practical arts shall not exceed 3 of these 6 units.
- (d) Health and physical education 2
- (e) Oral and written expression 3
- (f) Psychology 2
- (g) Additional units in general education 14
  May be selected in whole or in part from the foregoing six general areas or may include courses in family life education or mathematics or not more than 6 units in foreign language. At least one course in general education must include instruction in fire prevention.

(2) Teaching background, minimum .... 15 units

In addition to the 45 semester units required in general education, the teaching background in subject fields shall be selected according to the needs of the applicant, as prescribed by the teacher education department, with not less than 2 semester units in each of at least four of the following fields:

- (a) Art. Includes subject matter, laboratory or activity in the graphic or industrial arts.
- (b) English and speech. Includes oral and written expression, American or world literature, children's literature, dramatics, or use of books and libraries.
- (c) Physical education, health, and hygiene. Includes personal hygiene, first aid, health education, games, rhythms, or physical activities.
- (d) Mathematics.
- (e) Music.
- (f) Social science, including geography.
- (g) Natural science.

(3) Major in elementary education .... 24 units

Shall include courses from each of the following areas:

- (a) General elementary school methods or methods of teaching basic elementary school subjects.
- (b) Principles of elementary education or elementary school curriculum.
- (c) Child psychology or child growth and development.
- (d) Other appropriate professional courses in education including instruction in the use and educational value of audio and visual aids.

(4) Credit for teaching experience	8 units
A maximum of 8 semester units may be allowed for directed teaching and/or teaching experience on the elementary school level. Credit for teaching experience may be allowed at the rate of four units for one year of verified successful teaching experience.	
(5) Additional units required	32 units
Courses to complete the 124 units required for the degree shall be selected from those offerings of the college that best serve the cultural and professional needs of the candidate.	
Total	124 units

CREDIT-BY-EXAMINATION

A maximum of 30 units may be secured by examination in subjects included in the fields of study mentioned above. Students requesting credit-by-examination must comply with the provisions of the college established for this purpose. Refer to the section of this catalog on General Regulations, Credit-by-Examination.

BACHELOR OF VOCATIONAL EDUCATION DEGREE

ELIGIBILITY

The purpose of this degree is to promote the professional advancement of the vocational teachers in California. Eligible candidates for this degree shall be limited to those vocational teachers who meet the requirements established in the California Administrative Code, Chapter 5, Section 40503, and who are recommended by the Board of Examiners for Vocational Teachers.

MAJOR

The major in vocational arts consists of at least 24 upper division units to include the credits recommended by the Board of Examiners for Vocational Teachers for the applicant's occupational, managerial, and supervisory experience, and additional courses, if needed, to complete the minimum of 24 upper division units, to be selected with approval of the administrative chairman of the Division of Education.

The professional courses in teacher education completed by the applicant may be used toward electives.

GRADUATION REQUIREMENTS

Graduation requirements for this degree are the same as those for the A.B. degree in applied arts and sciences. Refer to the section of this catalog on Graduation Requirements for more complete information. Further information on this degree may be obtained from the administrative chairman of the Division of Education.

CREDENTIAL PROGRAMS FOR TEACHING AND SCHOOL SERVICE

HEALTH AND DEVELOPMENT CREDENTIAL

This program will be included under Designated Services Credential after July 1, 1963.

Under current regulations, requirements for this credential are outlined as follows:

Courses and field experiences are available which lead to the credential required for employment as a school nurse.

In addition to the general requirements of the State of California for all credentials, applicants for admission to the health and development credential program shall:

1. Verify possession of a current California registered nurse license issued by the State of California.
2. Verify preparation and/or experience under ONE of the following:
   a. Possession of a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education.
   b. Completion of a program of college or university study in public health nursing accredited by the National League for Nursing.
   c. Satisfactory full-time service as a school nurse in the schools of California for three years within the five years immediately prior to September 15, 1957.
3. Verify personal qualifications suitable for employment as a school nurse through personal interviews or communications from professional associates.
4. File a Program Planning Sheet and application forms with the Education Division Office.

CURRICULA LEADING TO HEALTH AND DEVELOPMENT CREDENTIAL

The candidate shall complete 36 semester units of acceptable preparation. This may be included as part of the preparation presented for the bachelor's degree.

Following are listed the areas of preparation outlined by the California State Department of Education and the program of courses which will provide the acceptable preparation:

	Units
A. Prevention and control of disease.	
Health Education 210B, Seminar: Communicable and Non-communicable Disease	3
B. Growth and development of children and youth and the learning process.	
Education 110, Development and Learning	4
or Education 111, Educational Psychology, plus	or
Education 112 or 113, Development	5
C. Principles and practices of public health nursing.	
Nursing 125, Public Health Nursing	4
D. Organization, administration, and legal aspects of the school health program.	
Health Education 153, Administration of the School Health Program	3
E. The nurse in the school health program.	
Nursing 160, Nursing in School Health Services	3
F. Materials and methods of instruction in health education.	
Education 121P, Methods in Health Education	2
G. Scope, function, and role of public education.	
Education 102, Secondary Education	3
H. Counseling and guidance.	
Education 115, Guidance in Elementary Education, or Education 230, Guidance Problems in Secondary Education	3
Education 233, Guidance Counseling Techniques	3
Psychology 133, Principles of Interviewing	3
I. Mental health.	
(This area is fulfilled within the above courses.)	
J. Supervised field observation.	
Education 182, Directed Internship	8

CREDENTIAL TO TEACH EXCEPTIONAL CHILDREN

Provision will be made for this program after the credential changes to be effective July 1, 1963.

Professional Curricula in Education
School Services Credentials

Under current regulations, the credential is available in the following areas of specialization:

A. Speech Correction and Lipreading in Remedial Classes

B. Teaching of the Mentally Retarded

CREDENTIAL REQUIREMENTS

In addition to the general requirements of the State of California for all credentials, the following are requirements for the credential to teach exceptional children:

(1) Possession of, or concurrent application for, a valid kindergarten-primary, general elementary, junior high school, or general secondary credential.
(2) Satisfactory completion of interviews for admission to the program for exceptional children.
(3) Completion of the work for the general area and the area of specialization as indicated below.

a. The general areas:	*Units*
Education 170, Exceptional Children	3
Education 115 or 230 or Psychology 152, Counseling and Guidance	3
Speech Arts 170, Speech Development	3
Education 182 or 371, Directed Internship	4
Total	13

b. Area of specialization:

1. *Speech Correction and Lipreading in Remedial Classes:*	
Speech Arts 100, Phonetics	3
Speech Arts 174, or Education 174, Principles and Methods of Speech Correction	3
Speech Arts 176, Stuttering and Neurological Disorders	3
Speech Arts 171, or Education 177, Audiometry	3
Speech Arts 178, or Education 178, The Teaching of Lipreading	3
Speech Arts 179, Clinical Methods in Speech Correction	2–4
Speech Arts 180, Field Work in Clinical Practice in Speech Correction	4–6
Total	21–25
Grand total	34–38

It is strongly recommended that students in the area of speech and hearing therapy obtain as much background in psychology as possible.

Suggested courses are:

Psychology 131, Psychology of Personality (3)
Psychology 150, Abnormal Psychology (3)
Psychology 151, Introduction to Clinical Appraisal (3)

2. *Teaching the mentally retarded:*	*Units*
Education 171, Curriculum and Methods for Mentally Retarded Children	3
Art 10 or 110, Crafts in the Elementary School	3
(Education 172, Workshop for Teaching the Mentally Retarded, meets the requirements for Education 171 and Art 10 or 110 when taken for 6 units)	
Psychology 109, Mental Deficiency	3
Electives (a minimum of 3 units to be selected in consultation with adviser)	3
Total	12

By careful scheduling it is possible to earn this credential in either area of specialization concurrently with the basic credential. The student should plan carefully his schedule of studies with the education adviser for the credential if his wishes to finish the credential within the four-year undergraduate period. It may be necessary to attend summer school to achieve this.

GENERAL SECONDARY CREDENTIAL

This program will be included under the Standard Teaching Credential with specialization in secondary teaching after July 1, 1963. Under current regulations, the program for this credential is described below.

GENERAL INFORMATION

A candidate for the general secondary school credential must complete the requirements for an A.B. or B.S. degree with prescribed work in one of the teaching majors and one of the teaching minors listed below.

CREDENTIAL REQUIREMENTS IN GENERAL EDUCATION

The general education requirements, or those in the liberal arts and sciences program, at this college will satisfy those required for the credential. Students who have received the bachelor's degree from another college must have earned at least 40 units of general education to include a minimum of six units in each of the following areas: (1) science and mathematics, (2) practical and fine arts, (3) social studies, (4) communicative arts. In addition, all candidates for the credential must complete from 24 to 30 units in a graduate year.

MAJORS COMMON TO BOTH GENERAL AND SPECIAL SECONDARY CREDENTIALS

Students desiring a major in art, business education, homemaking education, industrial arts, music, physical education, or speech arts may complete the requirements for the special secondary credential simultaneously with the bachelor's degree; then continue with the graduate program. Teaching majors and minors are described later in this section of the catalog.

MAJORS AND MINORS FOR THE GENERAL SECONDARY CREDENTIAL

Teaching Majors

- Art
- Biology and general science
- Business education
- English
- French
- German
- Health education
- Homemaking education
- Industrial arts
- Language arts
- Mathematics
- Music
- Physical education (Men)
- Physical education (Women)
- Physical science and general science
- Psychology
- Social science
- Spanish
- Speech arts

Teaching Minors

- Art
- Biology and general science
- Business education
- Economics
- English
- French
- German
- Health education
- History
- Homemaking education
- Industrial arts
- Mathematics
- Music
- Physical education (Men)
- Physical education (Women)
- Physical science and general science
- Russian
- Social science
- Spanish
- Speech arts

Persons with majors in broad fields (language arts, life science and general science, physical science and general science, or social science) cannot take a minor within the area of their major.

Teaching majors and minors are described later in this section of the catalog.

PROGRAM APPROVAL REQUIRED

Every candidate for the general secondary credential must have a program approved in writing by the departmental representative in the major teaching field and in education as part of admission to the teacher education program.

Any person desiring the general secondary credential should consult with the Coordinator of Secondary Education during his first semester of attendance at San Diego State College.

RECOMMENDED PROGRAM FOR THE GENERAL SECONDARY CREDENTIAL

1. The following courses should be completed before receiving the bachelor's degree: Health Education 151 (may be taken any semester); Education 100 and 110 (should be taken consecutively). Those persons changing from another vocational objective to education during the senior year may take Education 100 and 110 concurrently by special permission of the Coordinator of Secondary Education, following admission to teacher education and a check of the student's qualifications.

	Units
Health Education 151, Health Education for Secondary Teachers	2
Education 100, The Secondary School	4
Education 110, Development and Learning	4

2. After completion of requirements in (1) above, the following courses may be taken either before or after receiving the bachelor's degree; however, they should be taken concurrently with the first directed teaching assignment unless the student has equivalent teaching experience.

Education 120, The Teaching Process	4
Education 180 or 316, Directed Teaching-Secondary (or equivalent)	3
Education 121 (methods in field of student teaching assignment)	2–4

3. The graduate work must consist of San Diego State College's standard year of work, 24 to 30 semester units of upper division or graduate work, including the following specific requirements:
   (a) At least 12-15 semester units completed at San Diego State College.
   (b) At least six upper division or graduate semester units in subject fields commonly taught in junior and senior high schools. Graduate work in the major is recommended when this is a teaching subject area field.
   (c) Enough units to complete at least a 21 semester unit minor, with a minimum of six semester units of upper division credit in the minor subject area.

4. Professional Education during the graduate year: Completion of the courses listed in (1) and (2) above and the following:

Education 121 (in the field of the second directed teaching assignment if not taken under (2) above	2
Education 230, Guidance Problems in Secondary Education	3
Education 250, Curricular Problems in Secondary Education	3
Education 316, Directed Teaching, or equivalent teaching experience	3–6

GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

This program will be included in Designated Services Credential after July 1, 1963. Current regulations provide as follows:

In addition to the general requirements of the State of California for all credentials, the following are requirements for admission to the general pupil personnel services credential program:

1. Verification of a bachelor's degree granted by an institution accepted for credentialing purposes by the State Board of Education.
2. Verification of two years of successful teaching experience, or equivalent as stated in Title 5 of the California Administrative Code.

3. Satisfactory completion of at least two interviews with members of the Guidance Studies Committee of the Division of Education.
4. Presentation of a brief professional autobiography including a self-evaluation of potential as a pupil personnel worker.

The program of studies for the credential consists of a minimum of 30 semester hours of postgraduate work consisting of course work and field experiences in a general area and in at least one specialized area. It is possible for students to obtain the credential at San Diego State College in one or more of the following areas of specialization:

1. Pupil counseling
2. Child welfare and attendance
3. School psychometry
4. School psychology

Students desiring to meet the requirements as a school psychologist will be required (1) to meet the requirements of the general pupil personnel services credential in school psychometry and (2) obtain an additional year of graduate work in school psychology.

Further details on this credential are available in the Education Division Office of the college.

JUNIOR COLLEGE CREDENTIAL

This program will be included under the Standard Teaching Credential with specialization in junior college teaching after July 1, 1963. Under current regulations, the program for this credential is described as follows:

GENERAL INFORMATION

This credential entitles the holder to teach only in a junior college. Most of the professional course work will be offered in the evening program. Most major departments have worked out a combined M.A. degree and junior college credential program that would make it possible to obtain both in a calendar year of graduate work. The admission requirements are the same as those for the general secondary credential.

MAJORS AND MINORS

Recommendation of the candidate for the junior college credential will require a subject matter major equivalent to that required for the appropriate master's degree. Candidates who earn the master's degree from this institution with a subject matter major will regularly qualify in this respect. Those with a master's or doctor's degree in subjects from another institution will have their work evaluated to determine equivalency.

San Diego State will recommend for the credential only those candidates who have majored in subject matter fields for which the college is authorized to grant the master's degree. A list of these majors can be found in the Graduate Bulletin and in the section of this catalog on the Graduate Division.

Minors for the credential will be authorized only in those subject matter fields for which minors are available for the bachelor's degree. The minor must be equivalent to that for the general secondary credential. See list of minors for the general secondary credential above.

PROFESSIONAL COURSES IN TEACHER EDUCATION

Ten semester hours of professional education as follows:

Education 201, The Junior College
Education 223, Educational Psychology: Junior College
Education 251, Instructional Methods and Materials: Junior College
Education 316, Directed Teaching

Directed teaching can be accomplished only in a junior college assignment.

CURRICULA LEADING TO CREDENTIALS IN ADMINISTRATION AND SUPERVISION

These programs will be replaced after July 1, 1963, by programs for the Standard Supervision Credential and the Standard Administration Credential. Requirements under current regulations are described below.

GENERAL REQUIREMENTS FOR ADMINISTRATION AND SUPERVISION CREDENTIALS

In addition to the general requirements of the State of California for all credentials the following requirements are common for admission to and completion of all supervision and administration credentials:

1. Maintain a grade point average of 3.00 on all work applied toward the credential, exclusive of courses required for the basic credential.
2. Admission to the program of administrative studies, which includes:
   a. Completion of information on a personal data sheet and the filing of official transcripts of all college work. (Forms and information available in Division of Education Offices.)
   b. Completion of two counseling interviews with resident staff members teaching courses on the level, elementary or secondary, at which the candidate is working. The sequence of courses for the credential will be planned with the candidate at this time.
3. Admission to the program must be completed at any time previous to enrolling in Education 262, 263, 264, 265, 266, 267, and 360.
4. Candidate should not enroll for more than three semester units of 200 numbered courses applied toward the credential during any single semester when he has a full-time teaching position.
5. Candidate must have completed a minimum of two full years of successful teaching experience before he may be admitted to courses in the core subjects, Education 262, 263, 264, 265, 266, 267, and 360.

CREDENTIAL IN ELEMENTARY SCHOOL ADMINISTRATION

CURRICULA LEADING TO CREDENTIAL IN ELEMENTARY SCHOOL ADMINISTRATION

In addition to the requirements listed above, the candidate shall:

1. Possess a valid general elementary credential.
2. Present written evidence of two years of successful teaching experience on the elementary level.
3. Complete 30 semester units of upper division or graduate work in addition to the holding of the general elementary credential. These units shall include specific courses designated by the California State Board of Education and San Diego State College.
4. Complete a minimum of 15 units of postgraduate work in residence at San Diego State College.
5. Make formal application for an evaluation for the credential at San Diego State College and at the completion of all requirements, make application for the credential.

Course Requirements for the Elementary Administration Credential as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):
   1. The scope, functions, and place of the system of public education of elementary and secondary schools; rural and urban schools; vocational education; education for adults; special school programs; auxiliary agencies:
      Education 101 .... 2 units

2. Principles and practices of curriculum construction and evaluation:
   Education 240 or 245 .... 3 units
3. Measurement and appraisal of educational achievements and aptitudes:
   Education 151 .... 3 units
4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
   Education 115 or 230 .... 3 units

B. Concurrently with or subsequently to teaching experience, graduate or undergraduate training shall include work in the following subject groups, including directed fieldwork of such a nature as to give the applicant first-hand knowledge of problems and issues as they exist in the public schools:

1. Federal, state, county and city school organization, administration, and supervision:
   Education 260 .... 3 units
2. School finance, business administration, and law:
   Education 270 .... 3 units
3. The organization and administration of elementary schools:
   Education 262 .... 3 units
4. Elementary school supervision:
   Education 264 .... 3 units
5. Fieldwork or internship in school administration and supervision:
   Education 266 or 360 .... 3–6 units

C. Elective courses in general or professional education to complete 30 units *after receiving the General Elementary Credential or the A.B. degree.*

CREDENTIAL IN SECONDARY SCHOOL ADMINISTRATION

CURRICULA LEADING TO CREDENTIAL IN SECONDARY SCHOOL ADMINISTRATION

In addition to the common requirements listed above, the candidate shall:

1. Possess a valid general secondary credential.
2. Present written evidence of two years of successful teaching experience on the secondary level.
3. Complete 18 semester units of upper division or graduate work in addition to requirements for the general secondary credential. These units shall include specific courses designated by the California State Board of Education and San Diego State College.
4. Complete a minimum of 12 units of postgraduate work in residence at San Diego State College.
5. Make formal application for an evaluation for the credential at San Diego State College and at the completion of all requirements make application for the credential.

Course Requirements for the Secondary Administration Credential as Designated by the State Board of Education

A. Courses in undergraduate or graduate training (letters and numbers correspond with State Department Bulletin Credential Regulations):

1. The scope, functions, and place in the system of public education of elementary and secondary schools; vocational education; education for adults; special school programs; auxiliary agencies:
   Education 100, or 101 and 102 .... 4–5 units
2. Principles and practices of curriculum construction and evaluation:
   Education 250 .... 3 units
3. Measurement and appraisal of educational achievement and aptitudes:
   Education 120 or 152 .... 2–4 units

4. Pupil personnel, counseling and guidance, including techniques and practices of child study and parent education:
   Education 230 .... 3 units

B. Concurrently with or subsequently to teaching experience, graduate or undergraduate training shall include work in the following subject groups, including directed fieldwork of such a nature as to give the applicant first-hand knowledge of problems and issues as they exist in the public schools:

1. Federal, state, county and city school organization, administration, and supervision:
   Education 260 .... 3 units
2. Finance, law, business administration:
   Education 270 .... 3 units
3. The organization and administration of secondary schools:
   Education 263 .... 3 units
4. Supervision of instruction and curriclum in the secondary schools:
   Education 265 .... 3 units
5. Directed fieldwork or internship in administration and supervision:
   Education 267 or 360 .... 3–6 units

C. Elective courses in general or professional education to complete 18 units in addition to completing requirements for the general secondary credential.

CREDENTIAL IN SCHOOL SUPERVISION

CURRICULA LEADING TO CREDENTIAL IN SUPERVISION

In addition to the general requirements previously listed for administration and supervision credentials, the candidate shall:

1. Possess a bachelor's degree granted by an institution accepted for credentialing purposes by the California State Board of Education and a valid regular California credential.
2. Present verification of desirable personal characteristics for supervision by two persons who have been associated with the applicant in a school administrative or supervisory relationship within the past five years.
3. Present verification by an accredited institution or the chief school administrator of a minimum of five years of successful public school service which the institution or school administrator certifies as constituting an adequate basis for supervision. Criteria shall include such items as superior teaching, curriculum development, community work, individual counseling, and breadth of experience in various grade levels or subject areas.
4. Complete 24 semester hours of postgraduate work of upper division or graduate level concurrent with or subsequent to public school service. Preparation shall include work in each of the following areas:
   a. Philosophy, methods and materials of the applicant's basic credential field with emphasis on how to help teachers in that field: Education 240 or 254 (3 units).
   b. Techniques of supervision: Education 264 or 265 (3 units).
   c. Dynamics of human behavior, group processes and skills of communication: Education 278 (3 units).
   d. Curriculum development: Education 240 or 250 (3 units).
   e. Community activities, including field practice in agencies especially interested in children and youth: Education 266, 267, or 360 (3 units).
   f. The instructional aspects of school plants and equipment, including planning and utilization: Education 262 or 263 (3 units).
   g. School finance and law: Education 270 (3 units).
   h. The responsibility and relationships of teachers, administrators, supervisors, and members of governing boards in the organization of the school system and in the profession: Education 207 or 260 (3 units).

DESCRIPTION OF TEACHING MAJORS AND MINORS IN THE DIVISION OF EDUCATION

MAJOR AND MINORS FOR THE GENERAL ELEMENTARY AND KINDERGARTEN-PRIMARY CREDENTIALS

Major

ELEMENTARY EDUCATION MAJOR. This major is granted with the A.B. degree in education concurrently with the general elementary and/or kindergarten-primary credential.

Prerequisites for Both Credentials. Art 9 and 10, or equivalents; Music 7A and 7B; Physical Education 53; and Geography 1 and 2. (21 units.) Additional prerequisites for the kindergarten-primary credential: Music 10A-10B, or qualifying by examination. (2 units.)

Major. 39-43 upper division units to include the following courses: Education 112, 151 (6 units); Education 130 (13 units); Education 131 (7 units); Education 111 (2 units); Education 101 (2 units); Education 181 (7 units); Health Education 150 (2 units). Additional requirement for the kindergarten-primary credential: Education 132 (4 units).

Minors

ENGLISH TEACHING MINOR. This teaching minor in English for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units, to include three units in American literature. Six units in the minor must be in upper division courses.

FRENCH TEACHING MINOR. This teaching minor in French for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in French, six units of which must be in upper division courses.

GENERAL SCIENCE TEACHING MINOR. The teaching minor in general science for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units to include Biology 3 and 4, or Biology 5, or approved equivalents, Physical Science 1 and 2, or approved equivalents, and six upper division units chosen from Biology 160, Botany 119-S, Industrial Arts 185, Physical Science 120, 130, and 150, Zoology 119-S and 165.

GERMAN TEACHING MINOR. The teaching minor in German for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in German, six units of which must be in upper division courses.

INDUSTRIAL ARTS TEACHING MINOR. The teaching minor in industrial arts for the general elementary and kindergarten-primary credentials consists of a minimum of 21 units to include, in the lower division, Industrial Arts 11, 21, and nine units to be selected from at least three of the following courses: Industrial Arts 31, 51, 61, 71, and 81; and in the upper division, Industrial Arts 123 and four to six units of upper division elective courses in industrial arts.

LIBRARY SCIENCE TEACHING MINOR. The teaching minor in library science for the general elementary and kindergarten-primary credentials consists of 22 units to include Library Science 110, 118, 119, 136, 138; and Education 133 and 183.

MATHEMATICS TEACHING MINOR. The teaching minor in mathematics for the general elementary and kindergarten-primary credentials consists of 15 units in mathematics (not including Mathematics A), six units of which must be in upper division courses.

PHYSICAL EDUCATION TEACHING MINOR. The teaching minor in physical education for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in physical education, nine units of which must be in upper division courses. The minor should be planned in consultation with the departmental adviser in physical education.

RUSSIAN TEACHING MINOR. The teaching minor in Russian for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in Russian, six units of which must be in upper division courses.

SOCIAL SCIENCE TEACHING MINOR. The teaching minor in social science for the general elementary and kindergarten-primary credentials consists of a minimum of 15 units selected from anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, to include at least six upper division units in history and/or geography.

SPANISH TEACHING MINOR. The teaching minor in Spanish for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in Spanish, six units of which must be in upper division courses.

SPEECH ARTS TEACHING MINOR. The teaching minor in speech arts for the general elementary and kindergarten-primary credentials consists of from 15 to 22 units in speech arts, nine units of which must be in upper division courses. The student may emphasize speech and hearing pathology by selecting courses in consultation with the adviser.

TEACHING MAJORS AND MINORS FOR THE JUNIOR HIGH SCHOOL CREDENTIAL

Majors

ENGLISH TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior high school credential. The major consists of a minimum of 24 units in English and comparative literature, 18 units of which must be in upper division courses, to include three units in American literature and three units in Shakespeare. Recommended as part of the major: English 192.

FRENCH TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior high school credential. The major consists of a minimum of 24 units in French, 18 units of which must be in upper division courses.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Deaprtment of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

GENERAL SCIENCE TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior high school credential. The major includes the following requirements:

Prerequisites. Biology 3 and 4, or Biology 5, Physical Science 1 and 2, or equivalents.

Major. Thirty-three units, at least 12 of which must be in upper division courses, to include one of the following life science courses: Biology 110, 111, Botany 112, 114, 119-S, Zoology 114, 117, or 119-S; and one physical science course chosen from Physical Science 130, 150, or Physics 101. Electives to complete the minimum of 33 units may be taken in lower or upper division courses to be selected from the upper division courses listed above or from the following: Biology 15, 158, 161, Zoology 51, 121, 165, Physics 73, Industrial Arts 85 and 185.

GERMAN TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior high school credential. The major consists of a minimum of 24 units in German, 18 units of which must be in upper division courses.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

MATHEMATICS TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior high school credential. The major consists of a minimum of 24 units in mathematics, including lower and upper division courses. At least 18 units must be in upper division courses.

SOCIAL SCIENCE TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the junior school credential. The major consists of a minimum of 24 units, including lower and upper division courses, selected from courses in anthropology, economics, geography (except Geography 1 and 3), history, political science, and sociology, 18 units of which must be in upper division courses. Twelve units in social science courses must be concentrated in one field, six units of which must be in upper division courses.

SPANISH TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the high school credential. The major consists of a minimum of 24 units in Spanish, 18 units of which must be in upper division courses.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Minors

Minor. A minor for the A.B. degree and junior high school credential must be selected with approval of the Coordinator of Secondary Education.

TEACHING MAJORS FOR THE SPECIAL SECONDARY CREDENTIAL

ART TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Prerequisites. Art A, B, 6A, 6B, 14A, 50A, 50B, 5 or 51, 61, and six units of art electives. (25 units.)

Major. A minimum of 24 upper division units in art to include Art 106A, 112A, two units of 115A-B-C-D, 116A, 119A, 194A, 195A, Speech Arts 140A, and seven units of upper division art electives.

BUSINESS EDUCATION TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Requirements

The student must complete (1) the prerequisites to the major, (2) the basic requirements in the major, and (3) the requirements in **two subfields** of the major, of which *accounting* or *secretarial* must be one.

(1) Prerequisites. Business Administration 1A, 1B, 30A, 30B, 72 or equivalent, 73, 80; Economics 1A and 1B. (25 units.) A course in statistics must be taken in lower or upper division.

(2) Major—Basic Requirements. 24 upper division units to include Business Administration 127 or Economics 135, Business Administration 132, 150, 182, 185, 186, 188, 189, and Psychology 104A. (If a course in statistics is taken in the lower division, substitute three units of upper division electives approved by the departmental adviser.)

(3) Major—Subfield Requirements. Complete the courses in two of the following subfields, of which accounting or secretarial must be one:

Accounting. Six units selected from Business Administration 100, 102, and 106.

Secretarial. Business Administration 75B or equivalent, and Business Administration 183A-183B.

Business Management. (No additional requirements.)

Merchandising. Business Administration 50, 160, and 181. (Students who plan to meet the requirement of the State Department of Education for a special secondary limited credential in vocational business education must have, in addition to the above requirements, one year of practical experience in a distributive occupation and four semester units to be selected from Business Administration 152, 153, and 159.)

Work Experience

Satisfactory evidence must be presented of one-half year, or 1,000 hours, of approved experience in the field named in the credential.

HOMEMAKING EDUCATION MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Prerequisites. Home Economics 2, 3, 15, 30, 35, 40, 43, 70, Art 6A, Economics 1A, Sociology 1, Biology 1, Chemistry 2A-2B, and Physics 5. (39 units.)

Major. A minimum of 24 upper division units in home economics to include Home Economics 100, 115, 131, 151, 152, 170, 179, 181; and four units selected from Home Economics 102, 105, 116, 117, 118, 119, 143, 171, and 180.

INDUSTRIAL ARTS TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Prerequisites. Industrial Arts 11, to be taken at the beginning of the major; five courses to be selected from Industrial Arts 21, 31, 51, 61, 71, and 81; and Art 6A. (19 units.)

Major. A minimum of 24 upper division units to include nine units in **each of two** of the following fields: industrial drawing, general metalworking, general woodworking, electricity-radio, transportation, or graphic arts; and six units selected from the areas just mentioned, or from handicraft courses, photography courses, or the general shop sequence.

MUSIC TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

General Basic Requirements for Music Majors

1. Upon entering the department, each student is required to take an examination in piano for classification, and to commence on no less than four consecutive semesters of class or private piano study for credit.

2. Upon entering the department, each student is required to declare his major instrument (voice, piano, clarinet, etc.), take an examination thereon for classification, and continue the development of his performance ability through class or individual study for credit after admission to the program.

3. Appearance in at least one student recital during each semester in residence, according to departmental recital requirements.

4. As laboratory experience, participation in two performing groups each semester, beginning with the first semester and continuing for seven semesters for students in the special secondary credential program, one of which must be a major group (choir, piano ensemble, orchestra, or band) in which the major instrument or voice is regularly used.

Minimum Basic Credential Requirements

In addition to the general basic requirements described above, and before recommendation for admission to directed teaching will be granted, credential candidates must have completed all lower division courses in beginning class study of orchestral instruments and voice, Music 146A-146B, and must have passed the minimum state credential requirements in voice and piano, with or without credit, which are as follows:

(a) Piano: Ability (1) to play a Bach two-part invention; (2) to play an artistic accompaniment; (3) to play at sight four-part hymns.

(b) Voice: Ability (1) to sing at least one song representative of each of the following periods of vocal literature: classic, romantic, modern; (2) to sing at sight any part of a four-part hymn.

Students whose background in piano is inadequate for these requirements must register in their first semester for appropriate private or class instruction, with or without credit. Students with insufficient background in voice must register for voice instruction no later than the third semester.

Requirements in the Major

Prerequisites. Music 10ABCD (may be waived in full or in part by examination), Music 9A-9B; Music 15A-15B (or equivalents), 52, 59A-59B; four units selected from Music 20A, 20B, 25A, 25B, 30A, 30B, 35; eight units selected from courses numbered 70-88; and four units in the major instrument. (31-37 units.)

Major. Twenty-seven upper division units to include Music 108, 109A, 146A, 146B, 152A, 152B; three units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, 135; six units selected from courses numbered 170-188; three units in the major instrument; and four units of upper division music electives.

PHYSICAL EDUCATION TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Requirements for Men

Prerequisites. Two units of physical education activity courses, Physical Education 61, 63, 64, 72, 74, Health Education 65, and Zoology 8 and 22. (21 units.)

Major. Twenty-six upper division units to include Physical Education 141, 142 or 122, 145, 146, 161, 167, 168, 169, 170A or 170B, 190, and two units of upper division electives.

Requirements for Women

Prerequisites. Physical Education 2A-2B, 3A-3B, 4A-4B, 11, 13A, 14A, 16A, 18A, 20A, 56A-56B, 72; Zoology 8 and 22. (17 units.)

Major. Twenty-eight upper division units to include Physical Education 142, 151, 152, 154, 155, 156, 160, 162, 167, and 168.

SPEECH ARTS TEACHING MAJOR. This major is granted with the A.B. degree in education concurrently with the special secondary credential. The major includes the following requirements:

Prerequisites. Speech Arts 11A, 55A or 55B, 56, 60A or 60B, 63, 85; and three units of speech arts electives. (20 units.)

Major. Twenty-seven upper division units to include Speech Arts 100, 101, 110, 140A, 159, 170, 191, 192A or 192B; and six units selected from Speech Arts 108, 118A, 118B, 130, 143-S, 145, 152, 154A, 154B, 155, 162, 174, 176, 182, and 183.

TEACHING MAJORS AND MINORS FOR THE GENERAL SECONDARY CREDENTIAL

Majors

ART TEACHING MAJOR. The teaching major in art for the general secondary credential requires an undergraduate art major, possession of a bachelor's degree, additional postgraduate courses in art, and a teaching minor.

Teaching Major. The teaching major in art may be completed in one of the following ways:

(1) By completing the special secondary credential in art with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing an art major (without the credential) and including in the major the art courses required in the teaching major for the special secondary credential described above; and, in addition, completing the required courses in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include six units of 200-numbered courses in art to be approved by the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

BIOLOGY AND GENERAL SCIENCE TEACHING MAJOR. The teaching major in biology and general science for the general secondary credential requires an undergraduate major in biology, possession of a bachelor's degree, additional postgraduate courses in biology, and a teaching minor. The teaching major outlined below may be used as a biology major with the A.B. degree in applied arts and sciences by students who have been admitted to and continue in teacher education to time of graduation. The biology major in liberal arts and sciences and the biology major with the B.S. degree will also meet the undergraduate requirements for the teaching major in biology and general science.

Requirements

Prerequisites. Biology 5 and 15; Botany 50 and 51; Zoology 50 and 60; Chemistry 2A-2B; Physics 2A-2B (or with the approval of the departmental adviser, high school physics and college courses in Geology 2 and Physical Science 1).

Major. Twenty-seven upper division units to include Biology 101, 110, 155, 161; Microbiology 101; and eight units to be selected with approval of the adviser.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four units of 200-numbered courses which may be met by two biology seminars or by one biology seminar and two units of Botany 298 or Zoology 298. All courses must be selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential, other than a minor in the biological sciences.

BUSINESS EDUCATION MAJOR. The teaching major in business education for the general secondary credential requires an undergraduate major in business education, possession of a bachelor's degree, additional postgraduate courses in business education, and a teaching minor.

Teaching Major. The teaching major in business education may be completed in one of the following ways:

(1) By completing the special secondary credential in business education with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the business education major with the B.S. degree in business administration (without the special secondary credential), and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include five graduate units in Business Administration 270 and 271.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

ENGLISH TEACHING MAJOR. The teaching major in English for the general secondary credential requires an undergraduate major in English, possession of a bachelor's degree, additional postgraduate courses in English, and a teaching minor. The major outlined below may be used for the A.B. degree in liberal arts and sciences by students who have been admitted to and continue in teacher education to time of graduation. Foreign language is required with this major in liberal arts and sciences.

Requirements

Prerequisites. Twelve units of lower division English, to include English 56A and 56B and six units selected from courses numbered 50 and above.

Teaching Major. At least 24 upper division units in English, selected with the approval of the departmental adviser, to include English 191 and 192; three units from English 117A or 117B; six units from English 131, 132, 133, and 134; and nine units of British literature exclusive of Shakespeare, to include at least three units in literature before 1800 (chosen from 116A, 116B, 118A, 118B, 120A, 120B, 143A, 151) and at least three units in literature after 1800 (chosen from 119A, 119B, 126A, 126B, 129A, 129B, 143B).

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete six additional upper division or graduate units in literature, of which three units shall be in British literature. English 290 (Bibliography) must be taken prior to the first seminar a student may elect.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

FRENCH TEACHING MAJOR. The teaching major in French for the general secondary credential requires an undergraduate major in French, possession of a bachelor's degree, additional postgraduate courses in French, and a teaching minor.

Requirements

By date of eligibility for the credential, the student must have credit for at least 38 units of French, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of courses:

Prerequisites. French 1, 2, and 3 (or equivalents), French 4, 10, and 11. (8-20 units.)

Teaching Major. At least 24 upper division units in French to include French 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of French in the period literature of the language. This major will meet the undergraduate requirements for the bachelor's degree in liberal arts and sciences for students in teacher education at time of graduation.

Proficiency Examinations: Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. French majors will meet this requirement by completing six units of French 220 and 201 or 214 or 215.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

GERMAN TEACHING MAJOR. The teaching major in German for the general secondary credential requires an undergraduate major in German, possession of a bachelor's degree, additional postgraduate courses in German, and a teaching minor.

Requirements

By date of eligibility for the credential, the student must have credit for at least 38 units of German, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of courses:

Prerequisites. German 1, 2, and 3 (or equivalents), German 4, 10, and 11. (8-20 units.)

Teaching Major. At least 24 upper division units in German to include German 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of German in the period literature of the language. This major will meet the undergraduate requirements for the bachelor's degree in liberal arts and sciences for students in teacher education at time of graduation.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. German majors must meet this requirement by completing six units in German to include German 201 and 204 or 205 or 206.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

HEALTH EDUCATION TEACHING MAJOR. The teaching major in health education for the general secondary credential requires an undergraduate major in health education, possession of a bachelor's degree, additional postgraduate courses in health education, and a teaching minor.

Teaching Major. The teaching major in health education for the general secondary credential is the same as the major with the B.S. degree in applied arts and sciences.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Students with the teaching major in health education must meet this requirement by completing six units selected from the following graduate courses: Health Education 200, 202, 205, and 210.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

HOMEMAKING EDUCATION TEACHING MAJOR. The teaching major in homemaking education for the general secondary credential requires an undergraduate major in home economics, possession of a bachelor's degree, additional postgraduate courses in home economics, and a teaching minor.

Teaching Major. The teaching major in homemaking education may be completed in one of the following ways:

(1) By completing the special secondary credential in homemaking education with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the home economics major with the A.B. degree in applied arts and sciences, with emphasis in general home economics (without the special secondary credential), Home Economics 181, and the required courses in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four upper division or graduate units in home economics courses to be approved by the departmental adviser in homemaking education.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

INDUSTRIAL ARTS TEACHING MAJOR. The teaching major in industrial arts for the general secondary credential requires an undergraduate major in industrial arts, possession of a bachelor's degree, additional postgraduate courses in industrial arts, and a teaching minor.

Teaching Major. The teaching major in industrial arts may be completed in one of the following ways:

(1) By completing the special secondary credential in industrial arts with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the industrial arts major with the A.B. degree in applied arts and sciences (without the credential) and the additional courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include three units of Industrial Arts 200 and one to three additional units in upper division courses selected with approval of the department chairman.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

LANGUAGE ARTS TEACHING MAJOR. The teaching major in language arts for the general secondary credential requires an undergraduate major in language arts, possession of a bachelor's degree, additional postgraduate courses in speech arts and English, and a teaching minor.

Teaching Major. The teaching major in language arts is the same as the major with the A.B. degree in applied arts and sciences.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four to six units to be selected from one 200-numbered course in speech arts and one 200-numbered course in English.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential (other than a minor in English or in speech arts).

MATHEMATICS TEACHING MAJOR. The teaching major in mathematics for the general secondary credential requires an undergraduate major in mathematics, possession of a bachelor's degree, additional postgraduate courses in mathematics, and a teaching minor.

Teaching Major. The teaching major in mathematics is the same as that with the A.B. degree in applied arts and sciences or the A.B. degree in liberal arts and sciences, except as follows: Mathematics 52 is not required in the lower division; and upper division courses must include 101, 104, 150A, a geometry course, and a statistics course. Students who have been admitted to and continue in teacher education to time of graduation may use this major for the bachelor's degree.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include four units of upper division or 200-numbered courses in mathematics, selected with approval of the departamental adviser.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

MUSIC TEACHING MAJOR. The teaching major in music for the general secondary credential requires an undergraduate major in music, possession of a bachelor's degree, additional postgraduate courses in music, and a teaching minor.

Teaching Major. The teaching major in music may be completed in one of the following ways:

(1) By completing the special secondary credential in music with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the music major with the A.B. degree (without the special secondary credential) and including in the major the following courses: Music 15A-15B (or equivalent); four units selected from Music 20A, 20B, 25A, 25B, 30A, 30B, 35; and three units selected from Music 120A, 120B, 125A, 125B, 130A, 130B, and 135. In addition to the major, the student must pass the Minimum State Credential Requirements in voice and piano, with or without credit (see description of these requirements under the special secondary credential above). The required courses in the postgraduate year must also be completed.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Music majors must meet this requirement by completing six graduate units to be selected from Music 200, 203, 207, 208, 209, 246, and 252.

Teaching Minor. In the undergraduate program, the student should include one of the approved teaching minors for the credential.

PHYSICAL EDUCATION TEACHING MAJOR. The teaching major in physical education for the general secondary credential requires an undergraduate major in physical education, possession of a bachelor's degree, additional postgraduate courses in physical education, and a teaching minor.

Teaching Major. The teaching major in physical education may be completed in one of the following ways:

(1) By completing the special secondary credential in physical education with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the physical education major with the A.B. degree in applied arts and sciences (without the special secondary credential) and including or adding the following courses:

For Men. Health Education 65, Physical Education 141, 142 or 122, 145, 146, 161 and 190. The student must also complete the courses required in the postgraduate year.

For Women. Physical Education 4A-4B, 11, 13A, 14A, 16A, 18A, 20A, 142, 151, 152, 154, 155, 156, and 162. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Physical education majors must meet this requirement by completing six units of 200-numbered courses in physical education to be selected with approval of the departmental adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

PHYSICAL SCIENCE AND GENERAL SCIENCE TEACHING MAJOR. The teaching major in physical science and general science for the general secondary credential requires an undergraduate major in physical science, or in chemistry or physics with additional courses, possession of a bachelor's degree, additional postgraduate courses in the physical and life sciences, and a teaching minor.

Teaching Major. The teaching major in physical science and general science may be obtained in one of the following ways:

(1) By completing the major in physical science with the A.B. degree in applied arts and sciences and the additional courses required in the postgraduate year.

(2) By completing a major in chemistry or in physics with an A.B. or B.S. degree and the following additional courses: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; and Geology 2 and 3 or 1A. Recommended electives if not otherwise included in the major: Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Geography 153, Physics 101 or Physical Science 130, Physics 120A, and Zoology 119-S. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In the postgraduate program the credential candidate must complete a minimum of six upper division or graduate units in the physical or life sciences, and must have completed a minimum of six upper division units in each of the four groups listed under the major in physical science with the A.B. degree in applied arts and sciences.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

PSYCHOLOGY MAJOR FOR SECONDARY TEACHING. The major in psychology for the general secondary credential requires an undergraduate major in psychology, possession of a bachelor's degree, additional postgraduate courses in psychology, and two teaching minors. The psychology major for teaching programs, outlined below, may be used with the A.B. degree in applied arts and sciences by students who have been admitted to and continue in teacher education to time of graduation.

Requirements

Psychology Major. This is a nonteaching major in psychology which must be accompanied by two teaching minors when offered as part of the general secondary credential requirements.

Prerequisites. Psychology 5 and 6.

Major. A minimum of 24 upper division units in psychology to include Psychology 104A, 105, 110, 131, 151, and nine upper division units in psychology selected with approval of the departmental adviser. Students taking the psychology major in liberal arts and sciences must include the upper division courses listed here as part of the major.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. In addition, the student majoring in psychology must complete Psychology 201 (3 units).

Teaching Minors. In the undergraduate program the student should include two of the approved teaching minors for the credential.

SOCIAL SCIENCE TEACHING MAJOR. The major in social science for the general secondary credential requires an undergraduate major, possession of a bachelor's degree, additional postgraduate courses in the social sciences, and a teaching minor. Students who have been admitted to and continue in teacher education to time of graduation may use the teaching major in social science with the A.B. degree in applied arts and sciences. The social science major in liberal arts and sciences will also meet the undergraduate major requirements leading to the general secondary credential.

Requirements

Teaching Major. The teaching major in social science is the same as an undergraduate major in social science.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools, to include at least four units in the social sciences selected with approval of the adviser in social science.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential, other than a minor in the social sciences.

SPANISH TEACHING MAJOR. The teaching major in Spanish for the general secondary credential requires an undergraduate major in Spanish, possession of a bachelor's degree, additional postgraduate courses in Spanish, and a teaching minor.

Requirements

By date of eligibility for the credential, the student must have credit for at least 38 units of Spanish, exclusive of course equivalents, to include six units of prescribed courses taken in the postgraduate year and the following pattern of courses:

Prerequisites. Spanish 1, 2, and 3 (or equivalents), Spanish 4, 10, and 11. (8-20 units.)

Teaching Major. At least 24 upper division units in Spanish to include Spanish 101A, 101B, 102A, 102B, 122, 140, 141, and six upper division units of Spanish in the period literature of the language. This major will meet the undergraduate requirements for the bachelor's degree in liberal arts and sciences for students in teacher education.

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Spanish majors must meet this requirement by completing six units of Spanish 204 or 205 and 201 or 202.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

SPEECH ARTS TEACHING MAJOR. The teaching major in Speech Arts for the general secondary credential requires an undergraduate major in speech arts, possession of a bachelor's degree, additional postgraduate courses in speech arts, and a teaching minor.

Teaching Major. The teaching major in speech arts may be completed in one of the following ways:

(1) By completing the special secondary credential in speech arts with the A.B. degree in education and the additional courses required in the postgraduate year.

(2) By completing the teaching major outlined for the special secondary credential and the A.B. degree in applied arts and sciences (without taking the credential) and completing the additional courses required in the postgraduate year.

(3) By completing a major in speech arts for the bachelor's degree, to include, by date of credential candidacy, the specific courses required in the teaching major for the special secondary credential. The student must also complete the courses required in the postgraduate year.

Postgraduate Year. In addition to other credential requirements in the postgraduate program, the credential candidate must complete a minimum of six upper division or graduate units in subject fields commonly taught in junior and senior high schools. Students with the major in speech arts will meet this requirement by completing six units of 200-numbered courses in speech arts, selected with approval of the adviser.

Teaching Minor. In the undergraduate program the student should include one of the approved teaching minors for the credential.

Minors

ART TEACHING MINOR. The teaching minor in art for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Art A, B, 6A, 6B, 50A, 50B, 5 or 51, and one unit of art electives. (Art 14A is recommended.). In the upper division, six units of art electives.

BIOLOGY AND GENERAL SCIENCE TEACHING MINOR. The teaching minor in biology and general science for the general secondary credential may also be used as a minor in biology for the bachelor's degree. The minor consists of 22-23 units to include Biology 3 and 4, or Biology 5, Physical Science 1 and 2, or their equivalents, and a minimum of 11 upper division units in the biological sciences selected with approval of the adviser.

BUSINESS EDUCATION TEACHING MINOR. The teaching minor in business education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units and must include Business Administration 71, 72, 1A, 1B, two units of electives in business administration; and nine upper division units in business administration courses selected with approval of the adviser in business education.

ECONOMICS TEACHING MINOR. The teaching minor in economics for the general secondary credential may be used as a minor in economics for the bachelor's degree. The minor is not available to students with the broad social science major. The minor consists of a minimum of 21 units to include, in the lower division, Economics 1A-1B and a year course in another social science area (12 units); and in the upper division, Economics 100A and six units of upper division electives in economics (9 units).

ENGLISH TEACHING MINOR. The teaching minor in English for the general secondary credential may also be used for the bachelor's degree. This minor consists of a minimum of 21 units to include the following:

Lower Division Requirements. English 1A and a year course chosen from English 50A-50B, 52A-52B, 56A-56B, or 60A-60B (9 units).

Upper Division Requirements. Twelve units to include one course from each of the following areas: Nineteenth Century English Literature, selected from English 119A, 119B, 126A, 126B, or 143B; Shakespeare, selected from English 117A or 117B; American Literature, selected from English 131, 132, 133, or 134; and Language, English 192.

FRENCH TEACHING MINOR. The teaching minor in French for the general secondary credential consists of a minimum of 22 units, exclusive of course equivalents, and must include the following pattern of lower and upper division courses:

Lower Division Requirements. French 1, 2, and 3 (or equivalents), French 4, 10, and 11 (8-20 units).

Upper Division Requirements. French 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (French 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

GERMAN TEACHING MINOR. The teaching minor in German for the general secondary credential consists of a minimum of 22 units, exclusive of course equivalents, and must include the following pattern of lower and upper division courses:

Lower Division Requirements. German 1, 2, and 3 (or equivalents), German 4, 10, and 11 (8-20 units).

Upper Division Requirements. German 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (German 40-41 or 140-141 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

HEALTH EDUCATION TEACHING MINOR. The teaching minor in health education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Health Education 21, 65, and 90; and in the upper division, 15 units to be selected from Health Education 145, 151, 153, 154, 168, 175, 181, 185, 190, 191, and Physical Education 161. Courses should be selected in consultation with departmental adviser.

HISTORY TEACHING MINOR. The teaching minor in history for the general secondary credential may also be used as a minor for the bachelor's degree. This teaching minor is not available to students with a major in social science. The teaching minor consists of a minimum of 21 units to include the following courses: in the lower division, History 4A-4B, or 8A-8B or 17A-17B; six units of social science electives to be chosen from anthropology, economics, geography (except Geography 1 or 3), political science, and sociology; and in the upper division, nine units in history to complete the 21-unit minor including a year course.

HOMEMAKING EDUCATION TEACHING MINOR. The teaching minor in homemaking education for the general secondary credential may also be used as a minor in home economics for the bachelor's degree. The minor consists of a minimum of 21 units to include the following courses: in the lower division, Home Economics 3, 15, 70, and one to four units of electives in home economics (9-12 units); and in the upper division, Home Economics 150, 170, and seven to nine units of upper division electives in home economics (12-14 units).

INDUSTRIAL ARTS TEACHING MINOR. The teaching minor in industrial arts for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include, in the lower division, Industrial Arts 11, 21, and nine units to be selected from at least three of the following courses: Industrial Arts 31, 51, 61, 71, and 81; and in the upper division, Industrial Arts 123 and four to six units of upper division elective courses in industrial arts.

LIBRARIANSHIP FOR SECONDARY SCHOOLS. This program is not a substitute for a teaching minor required for the secondary credential; however, students planning to take the general secondary credential who wish to obtain education for librarianship in the secondary schools should complete the minor in library science, including Library Science 110, 118, 119, 136, and 138; and in addition, Education 183. These and other offered courses approved for the purpose meet the state requirements for issuance of the librarianship credential. Students should consult with the Coordinator of Library Science in the Division of Education.

MATHEMATICS TEACHING MINOR. The teaching minor in mathematics for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units, exclusive of course equivalents, to include the following courses: in the lower division, Mathematics 40, or qualifying by examination, Mathematics 50 and 51; one course in related areas selected from Astronomy 1, Engineering 20A or 20B, Physics 4A or 2A; and in the upper division, nine units in mathematics to include Mathematics 104 and six units of mathematics electives.

MUSIC TEACHING MINOR. The teaching minor in music for the general secondary credential consists of (1) general basic requirements and (2) course requirements in the minor.

General Basic Requirements. (1) Demonstration of vocal or instrumental performing ability before admission to the minor program may be granted, and (2) as laboratory experience, participation in one music performance group each semester for seven semesters (may be waived in special cases by the department chairman).

Course Requirements in the Minor. Twenty-one units (exclusive of course equivalents) to include the following courses:

Lower Division. Music 9A and 52; Music 10A-10B (which may be omitted in part or in full upon demonstration of proficiency); four units of performance group courses selected from courses numbered 70-88; and three to five units selected from Music 15A, 20A, 20B, 25A, 25B, 30A, and 30B.

Upper Division. Music 146A and 146B; three units of performance group courses selected from courses numbered 170-188; and one unit selected from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

A student desiring to use music as a minor for the A.B. degree and at the same time meet the requirements for a teaching minor for the general secondary credential can do so by completing the music minor for the degree, to include Music 52 and the following additional courses: three units from Music 15A, 20A, 20B, 25A, 25B, 30A, and 30B; Music 146A and 146B; and one unit from Music 111, 112, 116, 117, 121, 122, 126, 127, 131, 132, 150.

PHYSICAL EDUCATION TEACHING MINOR. The teaching minor in physical education for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units as follows:

Minor for Men. In the lower division, Physical Education 72, 74, and two to four units of physical education electives (other than general education courses); and in the upper division, four units of professional activity courses to be selected in consultation with the departmental representative; Physical Education 161, 170A or 170B, and five to seven units of upper division electives in physical education.

Minor for Women. In the lower division, Physical Education 1A, 2A, 2B, 3A, 56A, 56B, 74, and two to three units of physical education electives; and in the upper division, Physical Education 151, 156, and six to seven units from Physical Education 154A-154B, 170A, 170B, and 190.

PHYSICAL SCIENCE AND GENERAL SCIENCE TEACHING MINOR. The teaching minor in physical science and general science consists of a minimum of 27 units to include the following courses: Astronomy 1 and 9; Biology 3 and 4, or Biology 5; Chemistry 2A-2B or 1A-1B; Geology 1A or 2 and 3; and Physics 2A-2B-3A-3B or 4A-4B-4C. Recommended electives: Geography 3, Industrial Arts 5, 6, 85, Botany 119-S, Chemistry 12, Physical Science 130, 150, Physics 101, and Zoology 119-S.

Students using this minor in preparation for the general secondary credential who wish to obtain a minor in physical science for the bachelor's degree should refer to requirements in the physical science minor listed under the General Programs in applied arts and sciences.

RUSSIAN TEACHING MINOR. The teaching minor in Russian for the general secondary credential consists of a minimum of 22 units in Russian, exclusive of course equivalents, to include the following courses: Russian 1, 2, 3, 4, and 101A-101B. The teaching minor may be used as a minor for the bachelor's degree.

SOCIAL SCIENCE TEACHING MINOR. The teaching minor for the general secondary credential may also be used for the bachelor's degree by students who have been admitted to teacher education and have completed at least eight units of professional education courses by date of degree candidacy. This minor is not available to students with a social science major. The minor consists of 27 units distributed as follows:

Lower division. A six-unit sequence from **each of three** of the following groups: Anthropology 1A-1B; Economics 1A-1B; Geography 1 and 2; History 4A-4B or 8A-8B; Political Science 90 and 91 or 71A-71B; and Sociology 1 and 10.

Upper division. Six units in an upper division sequence course in U. S. history and three upper division units of social science electives.

SPANISH TEACHING MINOR. The teaching minor in Spanish for the general secondary credential consists of a minimum of 22 units, exclusive of course equivalents, and must include the following pattern of lower and upper division courses:

Lower division. Spanish 1, 2, and 3 (or equivalents), Spanish 4, 10, and 11 (8-20 units).

Upper division. Spanish 101A, 101B, 102A, 102B, and 122 (14 units).

Proficiency Examinations. Before taking a directed teaching assignment in the language (Education 180 or 316), the candidate for the credential must pass proficiency examinations, oral and written, administered by the Department of Foreign Languages, in the language and its area civilization. (Spanish 40 and 140 prepare for this latter examination in the area civilization.) The candidate must consult with the chairman of the Department of Foreign Languages for permission to take these examinations.

SPEECH ARTS TEACHING MINOR. The teaching minor in speech arts for the general secondary credential may also be used as a minor for the bachelor's degree. The minor consists of a minimum of 21 units to include Speech Arts 3, 4, 11A, 55A or 55B, 85, zero to one unit from courses numbered 61 and 63, and six to seven upper division units in speech arts courses to be selected with approval of the departmental adviser in speech arts.

PROFESSIONAL CURRICULA IN ENGINEERING

COURSES IN ENGINEERING

The Division of Engineering offers courses at the undergraduate and graduate level. These individual courses are described in the section of this catalog on Announcement of Courses. At the undergraduate level, the Division prescribes certain patterns of its courses, combined with those of other academic divisions of the college, as a program of 132 semester units leading to the degree, bachelor of science in engineering. This program is described in detail below. At the graduate level, the Division offers the master of science degree in specific major fields of engineering.

GRADUATE PROGRAM

The master of science degree with a major in mechanical engineering is offered. For further information, refer to the Graduate Bulletin and to the section of this catalog on the Graduate Division.

UNDERGRADUATE PROGRAM

The objective of the engineering program at San Diego State College is to provide the intellectual and physical environment best calculated to encourage students to develop their capacities toward a successful career in the profession of engineering. The graduate of this program is able to assume personal responsibility for the development and application of engineering knowledge with wisdom and judgment for the benefit of mankind. He is qualified to take the Engineer-in-Training examination as a first step to professional registration, to enter industry at the junior engineer level, or to continue his formal education at the graduate level. Because the engineer's work is predominantly intellectual and varied, and not of a routine mental or physical character, this program places emphasis upon the mastery of a strong core of subject matter in the physical sciences, mathematics, and the engineering sciences of broad applicability. Woven throughout the pattern is a continuing study of the socio-humanistic facets of our civilization, because the engineering graduate must expect to find his best expression as a leader of men, conscious of the social and economic implications of his decisions.

Although the profession of engineering presents in practice a variety of specialties, the undergraduate student confines his attention during the first two years of the four-year program to a common pattern of course work in fundamentals. During his junior and senior years he may give outlet to his interest in a broad field of engineering by electing a total of 29 units of course work in aerospace, civil, electrical and electronic, or mechanical engineering. Even here, during this upper division work, the student is involved with his fellows in the study of a common core of the engineering sciences; these courses, together with those elected in a specialty field, are taught with an emphasis upon universal application and cross-fertilization of thought.

High School Preparation

The program of 132 semester units prescribed by the Division of Engineering for the bachelor of science degree presumes that the entering student brings a high school preparation which includes physics, chemistry, geometry, trigonometry, two years of algebra, and mechanical drawing. Some remedial courses in these areas may be selected in the college, although delay in graduation usually results. Students with deficiencies are urged to consider enrolling in the Summer Sessions. Placement examinations are specifically required in mathematics and in drawing, in addition to the qualifying examinations taken by all applicants for admission as freshmen to the college.

REQUIREMENTS FOR THE B.S. DEGREE IN ENGINEERING

Graduation Requirements

1. A minimum of 132 semester units for the B.S. degree in engineering.
2. At least 24 units earned in residence, half of which must be completed among the last 20 units counted toward the degree.
3. A scholastic grade point average of 2.0 (grade of C on a five-point scale) or better in (a) all units attempted, (b) all units in the major, and (c) all units attempted at this college.
4. At least 36 upper division units.
5. A major in engineering as prescribed by the Division.
6. Satisfactory completion of competency tests in mathematics, speech, and writing, or completion of appropriate courses designated in lieu thereof.
7. All regulations established by the college.
8. American institutions, to include competence in American history, institutions, and ideals; U.S. Constitution; and California state and local government.
9. 45 units in general education courses in addition to the major, distributed as prescribed in the section of this catalog on Graduation Requirements.

MAJOR IN ENGINEERING

The major in engineering consists of a pattern of prescribed upper division courses totaling 53 units, to include the requirements for all students and the requirements in the student's selected field of specialization. Courses in the major are in addition to 45 units of general education. A minor is not required. (For additional information on general education and requirements for the degree, refer to the section of this catalog on Graduation Requirements.)

Also required as preparation for the major are the lower division prerequisite and related courses prescribed by the Division. These courses may be counted in general education if applicable.

MINOR IN ENGINEERING

A minor in engineering is available to students in other academic divisions of the college. The minor consists of from 15 to 22 units in engineering, nine units of which must be in upper division courses. The courses should follow a logical sequence and must be approved by the chairman of the Division of Engineering.

OUTLINE OF REQUIREMENTS

The program of study for the first two years is the same for all students in the Division of Engineering. The recommended pattern is shown below. Course descriptions and prerequisites are given in the section of this catalog on Announcement of Courses.

LOWER DIVISION REQUIREMENTS

Freshman Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Chem. 1A, General	5 ✓	Chem. 1E, Chem. for Engrs.	3 ✓
Math. 50, Anal. Geom. and Calc.	5 ✓	Math. 51, Diff. and Integ. Calc.	4 ✓
Engr. 20A, Graphics I	2 ✓	Phys. 4A, Principles	4 ✓
Sp. Arts 3 (or 4) Oral Commun.	2 ✓	Engr. 20B, Graphics II	2 ✓
Health Educ. 21, Prin. Healthful Living	2 ✓	Engl. 1A, Comp.	3 ✓
P.E. activity	½	P.E. activity	½
	16½		16½

† Sophomore Year

Math. 52, Diff. and Integ. Calc.	4	Phys. 4C, Principles	4 ✓
Phys. 4B, Principles	4 ✓	Engr. 25, Engr. Materials	3 ✓
Engr. 24, Engr. Measurements	3 ✓	Engr. 51, Dynamics	3 ✓
Engr. 50, Statics	3 ✓	American institutions	3 ✓
American institutions	3 ✓	Biol. 1, Ideas of Biol.	3
P.E. activity	½	P.E. activity	½
	17½		16½

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† Certain qualified students may, with consent of the adviser, elect one upper division course during the second semester of the sophomore year.

ENGINEERING APTITUDE AND ACHIEVEMENT TESTS

To provide faculty advisers with additional information for aiding students in planning their programs, two types of standardized examinations are given. The Engineering-Physical Science Aptitude Test is given to all entering freshmen students early in the first semester of registration. Students admitted to the college with advanced standing may file a transcript of previous college work with the chairman of the Division of Engineering in lieu of taking the aptitude test.

The Engineering Achievement Test is given once each semester for those students who have completed lower division requirements either at this college or at another institution. Dates for the test are announced by the Division of Engineering; students may register with the Division office to take the examination.

UPPER DIVISION REQUIREMENTS

The program of study for the last two years embraces the fundamental engineering sciences and their application to specific problems in selected fields of engineering practice, together with an opportunity for the student to approach an intellectual maturity in social, economic, ethic, and aesthetic thought.

The student must complete (1) the upper division requirements for all students; (2) the requirements of the selected field of specialization in accordance with an approved master plan filed during the first semester of the junior year; and (3) the remaining units of general education.

Recommended patterns in the four fields of specialization are shown below. Course descriptions and prerequisites are given in the section of this catalog on Announcement of Courses.

AEROSPACE ENGINEERING

Junior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
Engr. 100A, Elect. Circuits	3 ✓	Engr. 100B, Elect. Machines	3 ✓ 0
Engr. 108, Thermodynamics	4 ✓	✱ Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4 ✓	✱ Engr. 118, Rate Processes	3 ✓
Math. 118A, Adv. Math. for Engrs.	3 ✓	Engr. 150A, Aerodyn. I	3 ✓
‡Econ. 1A, Principles	3 ✓	Engr. 151A, Aero. Stress Anal.	3 ✓ → ?
	17		16

Senior Year

Fall Semester	*Units*	*Spring Semester*	*Units*
NO Engr. 150B, Aerodyn. II	3	NO Engr. 152, Propulsion Systems	3
NO Engr. 151B, Aero. Stress Anal.	3	Engr. 190G or 190H, Engr. Appl.	4 NO
NO Engr. 153, Flight Mech.	3	Psych. 1, General	3
NO †Electives within the major	4	†Electives within the major	3
Lit. or philosophy	3	Lit. or philosophy	3
	16		16

CIVIL ENGINEERING

Junior Year

Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Machines	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4	Engr. 120A, Struct. Anal. I	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 128, Surveying	3
‡Econ. 1A, Principles	3	Geol. 53, Gen. Geol. for Engrs.	1
		Lit. or philosophy	3
	17		17

Senior Year

Engr. 121, Reinf. Concrete	3	Engr. 190A or 190B, Engr. Appl.	4
Engr. 122, Soil Mech.	3	Engr. 118, Rate Processes	3
Engr. 123, Appl. Hydraul.	3	†Electives within the major	6
†Elective within the major	3	Lit. or philosophy	3
Psych. 1, General	3		
	15		16

ELECTRICAL AND ELECTRONIC ENGINEERING

Junior Year

Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Machines	3
Engr. 108, Thermodynamics	4	Engr. 101, Appl. Elect.	2
Engr. 100C, Basic Fields	3	Engr. 130, Network Anal.	4
Math. 118A, Adv. Math. for Engrs.	3	Engr. 116, Resist. of Mtls.	4
‡Econ. 1A, Principles	3	Psych. 1, General	3
	16		16

Senior Year

(Control Systems)

Engr. 131, Electromech. Dev.	3	Engr. 118, Rate Processes	3
Engr. 132, Transients	3	Engr. 190C, Engr. Appl.	4
Engr. 134A, Engr. Electronics	4	†Electives within the major	6
Engr. 115, Fluids	4	Lit. or philosophy	3
Lit. or philosophy	3		
	17		16

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† Approved as part of student's master plan by the Professor-in-Charge.

‡ Recommended general education course.

(Communications)

Fall semester	*Units*	*Spring Semester*	*Units*
Math. 118B, Adv. Math. for Engrs.	3	Engr. 118, Rate Processes	3
Engr. 134A, Engr. Electronics	4	Engr. 134B, Engr. Electronics	4
Engr. 137, Commun. Networks	3	Engr. 139, Advanced Fields	4
Engr. 115, Fluids	4	†Electives within the major	2
Lit. or philosophy	3	Lit. or philosophy	3
	17		16

MECHANICAL ENGINEERING

(Design)

Junior Year

Engr. 108, Thermodynamics	4	Engr. 100A, Elect. Circuits	3
Engr. 116, Resist. of Mtls.	4	Engr. 115, Fluid Mech.	4
Engr. 109, Metallurgy	3	Engr. 145, Mech. of Mach.	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 148, Engr. Thermo.	4
‡Econ. 1A, Principles	3	Lit. or philosophy	3
	17		17

Senior Year

Engr. 100B, Elect. Mach.	3	Engr. 118, Rate Processes	3
Engr. 146, Mach. Design	3	Engr. 190F, Engr. Appl.	4
†Electives within the major	6	†Electives within the major	6
Psych. 1, General	3	Lit. or philosophy	3
	15		16

MECHANICAL ENGINEERING

(Energy Conversion Systems)

Junior Year

Engr. 100A, Elect. Circuits	3	Engr. 100B, Elect. Mach.	3
Engr. 108, Thermodynamics	4	Engr. 115, Fluid Mech.	4
Engr. 116, Resist. of Mtls.	4	Engr. 118, Rate Processes	3
Math. 118A, Adv. Math. for Engrs.	3	Engr. 148, Engr. Thermo.	4
‡Econ. 1A, Principles	3	Lit. or philosophy	3
	17		17

Senior Year

Engr. 140, Heat Trans.	3	Engr. 143, Gas Dynamics	3
Engr. 146, Mach. Design	3	Engr. 190E, Engr. Appl.	4
†Electives within the major	6	†Electives within the major	6
Psych. 1, General	3	Lit. or philosophy	3
	15		16

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† Approved as part of a student's master plan by Professor-in-Charge.
‡ Recommended general education course.

PREPROFESSIONAL AND NONDEGREE CURRICULA

PREPROFESSIONAL PROGRAMS
AFROTC PROGRAM
CERTIFICATE PROGRAMS

PREPROFESSIONAL PROGRAMS

PROGRAMS AVAILABLE

Preprofessional curricula, which usually require three or four years of collegiate work, are offered. Curricula outlines of preprofessional study, which are presented on the following pages, meet the typical requirements for admission to professional schools. Students expecting to complete their professional training at other institutions should modify the suggested outlines of study to meet the requirements of the professional schools of their choice. Curricular outlines are presented for predental, prelegal, and premedical programs. Students planning to enter other professional fields, such as agriculture, forestry, optometry, pharmacy, veterinary science, may obtain assistance from faculty advisers in arranging appropriate preprofessional courses of study.

PREDENTAL CURRICULUM

Candidates for a degree in dentistry should ascertain the entrance requirements of the dental college to which they expect to transfer and should make whatever changes in the following typical requirements that may seem desirable in satisfying the requirements of the specific dental college.

The curriculum for dental hygiene is essentially the same as for predentistry.

Students ordinarily elect to concentrate in chemistry and zoology with a major in one and a minor in the other.

High school students planning to enter dentistry should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, mechanical drawing, and three years in one foreign language if required by the college to which a student expects to transfer.

RECOMMENDED COURSE OF STUDY FOR PREDENTAL CURRICULUM

Course of Study for Predental Curriculum. Freshman year, physical education activities, Health Education 21, Speech Arts 3, English 1A, English 2 or other literature course, Mathematics 3 and 4, or equivalents, Chemistry 1A-1B, Biology 5 or Biology 3 and 4; sophomore year, physical education activities, Psychology 1, Chemistry 4 or 5, Physics 2A-2B and 3A-3B, Zoology 60, Biology 15, social science including courses in American history, institutions and ideals; U. S. Constitution; and California state and local government.

The following courses for a third year in preparation for dentistry are suggested for students who fail to receive acceptance from a dental college after completing the prescribed 60 units: Chemistry 12, 112, Zoology 100, Art 119A, Psychology 11, 106, and additional courses in general education.

PRELEGAL CURRICULUM

The following curriculum is designed to meet the requirements of standard American schools of law for a broad and liberal education, while at the same time providing desirable flexibility in the individual programs. There are two patterns of concentration which will usually be indicated for the prelegal student, either of which may be selected, in consultation with the adviser, to fit best the interests of the student. These are the major-minor pattern and the general major pattern. Subject to individual variation, the fields of economics, history, and political science should receive first consideration when choosing the pattern of concentration as being the most effective background for later professional study in law and for possible activities in the field of business.

RECOMMENDED COURSE OF STUDY FOR PRELEGAL CURRICULUM

Lower division. Business Administration 1A-1B, Economics 1A-1B, Political Science 90 and 91 or 71A-71B, and a year course in history. *Upper division:* In the junior and senior years the student will plan his course with the counsel of his adviser in terms of the field of law in which he plans to work, but keeping in mind the entrance requirements and examinations for admission to schools of law. The recommended list below should receive prime consideration by all prelegal students in the selection of courses, though it is to be thought of as flexible in accordance with student needs.

Recommended. Economics 131, 133, 150, 170; History 151A-151B, 175A-175B; Political Science 111A-111B, 139A-139B.

Beyond the courses taken in the fields of concentration, upper division electives in English, philosophy, psychology, sociology, and speech arts are recommended. A mastery of English expression is essential. The approval of a prelegal adviser is required for all master plans. If the general major pattern of concentration is chosen, a copy of the master plan is to be filed with the Evaluations Office.

PREMEDICAL CURRICULUM

The completion of entrance requirements for admission to medical colleges requires three years of undergraduate study. However, four years of undergraduate study is usually completed before admission. The premedical student is strongly advised to select a major in a department leading toward an A.B. degree in liberal arts and sciences. This is most readily accomplished by majoring in biology, chemistry, or zoology, although other departmental majors are acceptable. Specific requirements for these majors are described for each department.

High school students planning to enter medicine should include in the high school program the following subjects: elementary algebra, plane geometry, intermediate algebra, chemistry, physics, and two or three years of German or French.

RECOMMENDED COURSE OF STUDY FOR PREMEDICAL CURRICULUM

The following is a list of courses which will satisfy the entrance requirements of most medical colleges. These courses should be included in the program of the premedical student regardless of his selected major. The entrance requirements for medical colleges differ somewhat and specific requirements of the medical school to which the student wishes to apply should be obtained directly from that medical college.

Courses to be included in the program during the first two undergraduate years: Biology 5; Chemistry 1A and 1B, Chemistry 4 or 5; six semester units of English, to include English 1A; two years of a modern foreign language (German or French); Physics 2A, 2B, 3A, 3B; Zoology 60.

Courses to be included in the undergraduate program during the third and fourth years: Chemistry 12 and 112; Zoology 100.

The following courses are strongly recommended for inclusion in the undergraduate program: Biology 15, Biology 155 or Zoology 164; Mathematics 21 and 22 or equivalent.

PREPARATION FOR OTHER PROFESSIONS

Programs leading to professional study in agriculture, architecture, forestry, optometry, pharmacy, theology, veterinary science, and other areas, may be planned for a student who may wish to take some undergraduate work in liberal arts at this college. Since these professional areas frequently require a compete four-year course of study at the institution granting the degree, preprofessional programs are not provided at San Diego State. If the student wishes to take work at this college, he is advised to consult the catalog of the college to which he expects to transfer to determine requirements before arranging his program. Faculty advisers will assist the student in planning his course of study.

AFROTC PROGRAM

AIR FORCE RESERVE OFFICERS' TRAINING CORPS

The Division of Air Science at San Diego State College offers the curriculum prescribed by the Air Force Reserve Officers' Training Corps. This curriculum consists of a four-year course, including a two-year lower division course and a two-year upper division course.

The objectives of the Air Force ROTC program are the development of qualities of leadership and character essential to civil and military responsibility, and the training of officers for the Air Force. Completion of the four-year course and a bachelor's degree satisfy the prerequisites for a commission in the Air Force Reserve. Students who have demonstrated outstanding qualities of scholarship and leadership are considered for regular commissions in the Air Force. Air Force ROTC graduates who are physically qualified may make application for the Air Force flying training program.

Flight instruction is offered as a part of the Air Force ROTC program to students in the senior year who are candidates for pilot training. The training includes 36½ hours of instruction at a Federal Aviation Agency approved civilian flying school leading to an FAA private pilot's license. The cost of this program is paid by the U. S. Air Force.

Eligibility for Admission to the Program

Eligibility: A regularly enrolled male student is eligible for admission to the air science program if he is a citizen of the United States, not less than 14 years of age, and physically qualified for military service. If programmed for flying training a student must complete all requirements for a commission upon graduation prior to reaching age 26 years, 6 months or 28 years if programmed for other than flying training. Successful completion of the lower division courses, or the equivalent thereof, is prerequisite to enrollment in the upper division course. The lower division course, or portions thereof, may be waived on the basis of two years prior honorable active U. S. military service. Portions of the lower division courses may also be waived on a year-to-year basis as deemed equivalent to previous training received at one of the service academies or in the Senior Division of the Army or Naval ROTC.

Registration in the Program. Students will normally register for the Air Science program as first semester freshmen to qualify for the full four-year program. Under certain circumstances, students may enter as first semester sophomores and qualify for commissions in the Air Force in three years. This applies to transfer students and to outstanding students who have only three years of college remaining. All applicants must pass required screening tests and be selected by the Professor of Air Science and the President of the College.

Summer Camp

Attendance at one summer camp is required of each student to qualify for the commission. The summer camp is four weeks in length and is held at an active Air Force base. The student receives $78 per month during this training period. Uniforms, equipment, subsistence, and transportation are furnished by the Air Force.

Allowances

Students in the lower and upper division courses are furnished uniforms, equipment, and textbooks for air science. Students in the upper division course under formal agreement are given an allowance of approximately $27 per month. Upon acceptance into the upper division program, the student executes a written agreement with the United States Government and with the President of the College to complete the upper division course, completion of such course becoming a prerequisite to graduation.

Lower and Upper Division Courses

The lower division course requires one hour of leadership laboratory per week each semester and two hours of classroom instruction during the first freshman semester and the second sophomore semester. The upper division course requires four hours of classroom instruction and one hour of leadership laboratory per week each semester. In addition, each student in the upper division course must attend one summer camp of four weeks. The lower division course is primarily an education for citizenship in the air age. The upper division course prepares the student to assume the duties and responsibilities of junior officers in the U. S. Air Force.

Students enrolled in the AFROTC program pursue their regular courses of study in fields of their choice. Major work is not offered in air science, but a minor is offered, or it may be used as one of the fields for a general major.

MINOR IN AIR SCIENCE

The minor in air science consists of 15 to 22 units in air science, ten units of which must be in upper division courses. Veterans may apply credits allowed for military service to clear lower division requirements for the minor.

COURSES

Courses in Air Science are described in the section of this catalog on Announcement of Courses.

CERTIFICATE PROGRAMS

CERTIFICATE (NONDEGREE) PROGRAMS

The Certificate in Public Administration is offered in the regular program and may also be obtained through the Extension Program. Courses required for this Certificate are usually available in classes meeting at 4 o'clock or later.

Offered in the Extension Program are the Certificate in Industrial Management and the Certificate in Office Management.

CERTIFICATE IN PUBLIC ADMINISTRATION

The Certificate in Public Administration is offered by the Department of Political Science in the Division of the Social Sciences. It is designed primarily for persons who hold administrative or managerial positions and those who seek to prepare for such responsibility.

Previous academic experience is not a prerequisite for beginning work on the certificate program. Candidacy will be established, however, by approval of the Director of Public Administration. To receive the Certificate in Public Administration, the candidate must complete an approved pattern of eight courses, with a grade point average of 2.5.

Candidates for this certificate program may obtain further information on requirements by writing to the Director of Public Administration, San Diego State College.

CERTIFICATE IN INDUSTRIAL MANAGEMENT

(In the Extension Courses Program)

The Certificate in Industrial Management is offered by the Division of Business Administration through the Extension Courses Program. This certificate program is open to all industrial employees. Previous academic experience is not required. Candidacy will be established by the Coordinator of the Industrial Management Certificate Program after the applicant has satisfactorily completed a minimum of six semester units with a grade average of C or better in San Diego State College Extension courses.

To receive the certificate, the candidate must complete a total of 30 units of approved courses with a 2.0 (C) grade average or better. No grade below a C may be counted toward the certificate.

All of the following Extension courses must be completed: Business Administration X-190 A,B,C,D,E,F,G,H,I,J.

Credit for the above courses is applicable only to the certificate programs and may not be used to meet pattern requirements for the B.S. degree. See the Coordinator of the Industrial Management Certificate program for information regarding degree programs.

Certificate in Data Processing

In addition to the Certificate in Industrial Management, the Division of Business Administration cooperates with the National Machine Accountants Association in offering the Certificate in Data Processing.

CERTIFICATE IN OFFICE MANAGEMENT

(In the Extension Courses Program)

The Certificate in Office Management is offered by the Division of Business Administration through the Extension Courses Program. This certificate program is open to all office supervisory and management personnel. Previous academic experience is not required. Candidacy will be established by the Coordinator of the Office Management Certificate Program after the applicant has satisfactorily completed a minimum of six semester units with a grade average of C or better in San Diego State College Extension courses.

To receive the certificate, the candidate must complete a total of 30 units of approved courses with a grade average of 2.0 (C) or better. No grade below a C may be counted toward the certificate.

All of the following Extension courses must be completed: Business Administration X-190 A,B,E,F,G,H; and X-191 A,B,C,D.

Credit for the above courses is applicable only to the certificate programs and may not be used to meet pattern requirements for the B.S. degree. See the Coordinator of the Office Management Certificate program for information regarding degree programs.

Certified Professional Secretary Certificate

In addition to the Certificate in Office Management, the Division of Business Administration cooperates with the National Secretaries Association in offering the Certified Professional Secretary Certificate.

GRADUATE CURRICULA

GRADUATE DIVISION

GRADUATE DIVISION

ORGANIZATION AND ADMINISTRATION

All graduate work leading to advanced degrees is under the jurisdiction of the Graduate Division and responsibility for all graduate curricula is delegated to a Graduate Council under the chairmanship of the Dean of Graduate and Professional Studies who also serves as the administrative officer of the Graduate Division.

Under the provisions of Section 41001 of the Administrative Code (see the section of this catalog on Admissions), the Graduate Council, through the Graduate Office, admits all students to authorized graduate degree curricula, determines their eligibility to continue in such curricula, and, in the cases of unsatisfactory performance, requires students to withdraw from all graduate curricula.

The Graduate Council is the appropriate college authority for the administration of all matters related to graduate degree curricula, requirements for which are specified in Section 40504 of the Administrative Code quoted below.

ASSOCIATION MEMBERSHIP

San Diego State College is a member of the Western Association of Graduate Schools and the Council of Graduate Schools in the United States.

DEGREES OFFERED

The master of arts and the master of science degrees are conferred by the Trustees of the California State Colleges upon recommendation of the faculty of San Diego State College. These degrees are designed to provide instruction for graduate students in the liberal arts and sciences, in applied fields, and in the professions, including the teaching profession. A doctoral degree to be awarded jointly with the University of California is under consideration.

ADMISSION PROCEDURES

MATRICULATION

A student who holds the baccalaureate degree from any institution, including San Diego State College, who desires to register for classes must apply for admission to the college and comply with all regulations of the Admissions Office. (See the section of this catalog on Admissions.)

UNCLASSIFIED GRADUATE STANDING

Acceptable graduate students are admitted to the college by the Admissions Office with unclassified graduate standing. Admission to the college with unclassified graduate standing does not constitute admission to graduate degree curricula in the Graduate Division.

CLASSIFIED STANDING IN THE GRADUATE DIVISION

A student who has been admitted to the college by the Admissions Office with unclassified graduate standing who desires to earn an advanced degree must file an application for admission to an authorized master's degree curriculum and the Graduate Division. If the applicant meets the requirements of Section 41001 of the Administrative Code, he will be admitted to the graduate curriculum of his choice and to the Graduate Division with *classified graduate standing*. The Graduate Office notifies the Registrar to change the status of the student from unclassified to classified standing.

FAILURE TO MEET ADMISSION REQUIREMENTS

If the applicant fails to meet the requirements for classified graduate standing, he may remain in the college with unclassified graduate standing and enroll in any undergraduate course for which he has the necessary prerequisites.

Unclassified graduate students are not eligible to enroll in 200-numbered courses except with permission of the instructor and the Dean of Graduate and Professional Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance in satisfaction of master's degree requirements.

Undergraduate students are not permitted to enroll in 200-numbered courses except with permission of the Dean of Graduate and Professional Studies.

WITHDRAWAL AND REINSTATEMENT

A graduate student who has begun work on a graduate degree and has taken no courses within the last calendar year is considered to have withdrawn from the degree curriculum. If he wishes to resume his work, he must file an application for readmission to the Graduate Division. He will then be required to comply with regulations and requirements in effect at the time his application for readmission is accepted.

Any student who was not in attendance during the semester preceding the semester in which he wishes to enroll must apply for readmission to the college.

Any graduate student whose performance is judged to be unsatisfactory by the Graduate Council may be required to withdraw from all graduate degree curricula offered by San Diego State College.

MASTER'S DEGREE CURRICULA

REQUIREMENTS FOR MASTER'S DEGREE

Section 40504 of the Administrative Code specifies the requirements for all master's degrees offered by San Diego State College as follows:

"To be eligible for the master's degree, the candidate shall have completed the following requirements:

a. **Advancement to Candidacy.** For advancement to candidacy for the master's degree, the applicant shall have met the following minimum requirements:
   (1) The completion of requirements for admission to graduate standing, as specified in Section 41001.
   (2) Such scholastic, professional, and personal standards, the passing of examinations, and other qualifications as the college may prescribe.

b. **Requirements for the Degree.**
   (1) Thirty semester units of graduate work completed within seven years of the date when all of the requirements for the degree are completed, except that the college, at its option, may extend the time for students who pass a comprehensive examination in the relevant course or subject field. Of the 30 semester units:
      (A) Not less than 24 shall be completed in residence.
      (B) Not less than 12 shall be in courses organized primarily for graduate students.

(C) Not more than six shall be in student teaching, extension course classes, and/or transfer credit.*

(D) Not more than six shall be allowed for a thesis,† but the requirement of a thesis is optional with the college.

(2) A grade-point average of 3.0 (grade of B on a five-point scale) or better in all courses taken to satisfy the requirements for the degree.

(3) The completion of a satisfactory pattern of study in an approved field of concentration."

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* Only units in extension and/or transfer are accepted in this category at San Diego State College.

† Three units are allowed at San Diego State College.

MAJORS FOR THE MASTER'S DEGREE

Master of Arts

Art
Biology
Business education
Chemistry
Economics
Education
English
French
Geography
Health education
History
Industrial arts
Mathematics
Music
Philosophy
Physical education
Physical science
Physics
Political science
Psychology
Social science
Sociology
Spanish
Speech arts

Master of Science

Biology
Business administration
Chemistry
Geology
Mathematics
Mechanical engineering
Physics
Psychology
Public administration

GRADUATE BULLETIN

Complete details on the operation and administration of these requirements, together with other administrative regulations on graduate study as determined by the Graduate Council, will be found in the Graduate Bulletin, which is available at the Graduate Office.

ANNOUNCEMENT OF COURSES

ANNOUNCEMENT OF COURSES

COURSE NUMBERING

Courses numbered from 1 to 99 are lower division (freshman or sophomore) courses; those numbered 100 to 199 are upper division (junior or senior) courses; those numbered 200 to 299 are graduate courses; those numbered 300 to 399 are professional education courses to be taken at the graduate level.

THE UNIT OR CREDIT HOUR

In the listing of courses that follow, figures in parentheses indicate the unit value of the course. One unit or credit hour represents 50 minutes of recitation or lecture, together with the required preparation, or three hours of laboratory work or two hours of activities, each week for a semester of 18 weeks.

PREREQUISITES FOR UNDERGRADUATE COURSES

Prerequisites for each course are stated in the course description. A student must not enroll in a course for which he is not eligible.

PREREQUISITES FOR GRADUATE COURSES

Graduate level (200-numbered) courses require, as a general prerequisite, competence in the specific field as indicated by a substantial amount of upper division study in the field or in a closely related field. Unless otherwise specified in the course description, graduate level courses are open to classified graduate students with the permission of the instructor. Unclassified graduate students must obtain the permission of the instructor and the Dean of Graduate Studies before they may enroll in a graduate level course.

SEMESTER IN WHICH COURSES ARE OFFERED

In the listing of courses that follows, Roman numeral I indicates a course offered in the fall semester. Roman numeral II indicates a course offered in the spring semester.

Following the course title are designations of credit and the semester in which course is offered. Examples:

(3) I.................................Three units. Offered in fall semester.

(3) II.................................Three units. Offered in spring semester.

(3-3).................................Three units each semester. Year course normally beginning in the fall semester.

(3–3) I, II.................................Three units each semester. Year course beginning either semester.

X–.................................An "X" preceding a course number indicates a course offered in extension only.

Although the college fully expects to carry out the arrangements planned in the list of courses, it reserves the right to make changes. Classes in which the enrollment does not come up to the minimum number set by the Trustees of the State Colleges may not be offered or may be postponed.

AIR SCIENCE

IN THE DIVISION OF AIR SCIENCE

Faculty

Professor: Lt. Col. Roy E. Gudith (Chairman)

Assistant Professors: Major Charles L. Waid, Capt. Grady F. Fisher, Capt. Wynn D. Hansen.

Offered by the Division of Air Science

ROTC curriculum. (Described in the section on Preprofessional and Nondegree Curricula.)

Minor in air science. (Described in the section on the General Programs.)

Summer Camp.

Flight instruction.

LOWER DIVISION COURSES

1. Foundations of Aerospace Power (2) I

Two lectures and one hour of leadership laboratory.

An introductory examination of the factors of aerospace power, major ideological conflicts, requirements for military forces in being, responsibilities of citizenship, development and traditions of the military profession, role and attributes of the professional officer in American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world.

2. Leadership Laboratory (1) II

One hour of leadership laboratory.

A specialized course designed to provide the AFROTC cadet with opportunities for leadership training and experience in a supervised environment. Course includes training in military drill and ceremony, customs, courtesy, procedures, and the function of self-discipline.

21. Fundamentals of Aerospace Weapon Systems (2) II

Two lectures and one hour of leadership laboratory.

An introductory survey of aerospace missiles and craft, and their propulsion and guidance systems; target intelligence and electronic warfare; nuclear, chemical and biological warhead agents; defensive, strategic, and tactical operations; problems, mechanics, and military implications of space operations; and a survey of contemporary military thought.

22. Leadership Laboratory (1) I

One hour of leadership laboratory.

A more advanced course designed to prepare the student for the assumption of leadership positions in the AFROTC Cadet Group.

Delayed Initial Enrollment

Transfer students and students who have established an outstanding record during their freshman year at San Diego State may enroll in Air Science 1 and Air Science 21 during the sophomore year. Concurrence of the Air Science Division chairman is required.

UPPER DIVISION COURSES

131A-131B. Air Force Officer Development (3-3)

Four lectures and one hour of leadership laboratory.

Prerequisites: Air Science 1 and 21.

Study of staff organization and functions, and the skills required for effective staff work, including oral and written communication and problem solving; basic psychological and sociological principles of leadership and their application to leadership practice and problems; and an introduction to military justice.

141A-141B. Global Relations (2-2)

One lecture and two hours of leadership laboratory.

Prerequisites: Air Science 131A and 131B, or consent of the Air Science Division Chairman.

Study of global relations of special concern to the Air Force officer and study in preparation for commissioned service. Course includes leadership training in planning and directing the operation of the cadet corps.

NOTE: In addition to Air Science 141A-141B, all fourth year ROTC students will enroll in an upper division three-unit course in international relations and an upper division three-unit course in geography; one course to be taken during the first semester and the other course during the second semester. Selection of these courses must be made with the advisement of the Air Science Division chairman.

151. Flight Instruction (2) I

Available only to fourth year AFROTC pilot trainee students.

Flight instruction is provided in civilian aircraft to qualify students in basic principles of contact flying and ground instruction to insure safe flight. Each student will complete requirements necessary to qualify for Federal Aviation Agency private pilot certificate.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of Air Science Division chairman.

EXTENSION COURSE

X-133. Summer Training Camp (3)

A four-week camp required of all advanced students; normally completed between junior and senior year. Credit granted through the Extension Division on basis of individual student application with approval of the Air Science Division chairman.

ANTHROPOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professor: Rogers, S.
Associate Professor: Ezell
Assistant Professors: Anderson, A., Goldkind, Mann

Offered by the Department of Sociology-Anthropology

Major in anthropology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in anthropology. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1A. Human Origins (3) I, II

Man's place in nature; fossil evidences of early man; theories of human development; racial variability. Not open to students with credit in Anthropology 100A. (1A was formerly offered as Anthropology 1.)

1B. Culture Origins (3) I, II

May be taken before Anthropology 1A.

Prehistoric cultures of Europe and the Middle East; archaelogical techniques; basic inventions and cultural innovations; language and culture. Not open to students with credit in Anthropology 100B. (1B was formerly offered as Anthropology 2.)

3. Primitive Societies (3) I

May be taken before Anthropology 1A or 1B.

Man's relationship to his environment; types of preliterate society; systems of family organization, government, and religion.

UPPER DIVISION COURSES

100A-100B. Principles of Anthropology (3-3)

Prerequisite: Anthropology 100A is prerequisite to 100B.

Human evolution as a biocultural process; man's relation to other forms of life and to his habitat; the growth of cultures; the interplay between biology, culture, and society. Not open to students with credit in Anthropology 1A and 1B. Anthropology 100A-100B may not be used to fulfill minimal upper division requirements in the anthropology major or minor, social science major or minor, or the general major.

102. Physical Anthropology (3) I

Prerequisite: Anthropology 1A or 100A.

A review of primate comparative anatomy and human palaeontology. Racial anatomy and population genetics. Physical measurement of the living subject and skeletal specimens. The statistical treatment of data in physical anthropology. Applications of physical anthropology in industry and medico-legal problems.

103. Principles of Archaeology (3) II

Prerequisite: Anthropology 1B or 100B.

The historic background and basic techniques of archaeological excavation. Methods of site excavation with particular emphasis on California and the Southwest. Principles of culture dynamics utilized in archaeological interpretation.

115. Primatology (3) I

Prerequisite: Anthropology 1A or 100A.

Description, taxonomy, and comparative anatomy of the anthropoid apes, monkeys, and lesser primates. Primate behavior as a basis for the reconstruction of prehistoric human behavior. Extensive use of the primate collections of the San Diego Zoo.

120. Introduction to Anthropological Linguistics (3) I, II

Prerequisite: Anthropology 1A or 1B or 3 or 100A or 100B, or equivalent.

An introduction to the structural nature of language. How languages differ, change, and influence each other. The language families of the world. The significance of language for human social life in a variety of cultures.

124. Descriptive Linguistics (3) II

Prerequisite: Anthropology 120.

Principles and techniques of descriptive linguistics. Problems and methods in the phonetic transcription and analysis of unwritten, non-Indo-European languages. Emphasis on articulatory phonetics, field techniques, and work with informants.

150. Ethnological Field Methods (3) I

Prerequisite: Anthropology 152.

An introduction to the problems and techniques of obtaining data in ethnological and social anthropological field work; preparation, gaining and maintaining rapport, evaluating data, participant-observation. A review of literature followed by work with informants.

151A. The North American Indian (3) I

Prerequisite: Anthropology 1B or 100B or consent of instructor.

Pre-Columbian cultures of the North American Indian. The origin and migration of New World peoples. Industries, arts, crafts, social organization, religion and other phases of American-Indian civilization.

151B. Indian Civilization of Middle America (3) II

The development of civilization in Pre-Columbian Mexico and Central America: Aztec, Mayan, and related cultures.

152. World Ethnography (3) I

Prerequisite: Anthropology 1B or 3 or 100B or Sociology 1.

The cultural patterns of representative aboriginal peoples. Industries, arts, social organization and supernaturalism considered with a view to environmental adjustment, historical development and functional interrelation. Ethnological theories reviewed and applied in interpreting illustrative aboriginal societies.

153. Primitive Religion (3) II

Beliefs and ritual of primitive man. Magic and religion. Forms of animism and polytheism. Primitive mentality and the supernatural.

154. Social Anthropology (3) I

Prerequisite: Anthropology 1B or 3 or 100B or Sociology 1.

A study of the methods and findings in some of the major problem areas of anthropology. Cross cultural comparisons, the integration of culture, relation to personality, acculturation and analysis of cultural changes.

155. Peasant Society and Culture (3) I

Prerequisite: Anthropology 1B or 3 or 100B or Sociology 1.

Analysis of the social organization and culture of present-day small agricultural communities with special emphasis on changes brought about by modernization.

156. Cultural Change and Processes (3) I

Prerequisite: Anthropology 1A or 1B or 100A or 100B.

The individual and the culture pattern: The acquisition of culture, innovation and invention, direction of cultural development, diffusion and interpenetration of cultures. Illustrations from contemporary and historic peoples: Indians of the Southwest, Eskimos, aboriginal groups of Australia, Africa and Oceania.

157. Meso-American Ethnohistory (3) II

Prerequisite: Anthropology 1B or 3 or 100B.

Aboriginal pre- and post-Conquest civilization of Mexico with emphasis on the developments, changes, and characteristics of aboriginal, mestizo, and creole society in Colonial Meso-America; stress on appropriate texts and codices.

161. The California Indian (3)

A survey of native California Indian culture with stress on the Indian groups of Southern California. The industries, arts, social organization, folklore and religion will be considered as revealed through the study of living peoples and archaeological evidences.

162. Cultures of South America (3) II

Prerequisite: Anthropology 1B or 3 or 100B.

Survey of Indian cultures in terms of origins, migration, relation to habitat, cultural variation and relevance to contemporary trends. Development of Inca civilization, the effects of the Spanish conquest and its aftermath.

163. Contemporary Latin American Cultures (3) II

Prerequisite: Anthropology 3 or Sociology 1 or Political Science 91.

A social anthropological approach to the structure and dynamics of contemporary conditions and problems, especially as revealed in studies of particular communities. Included are such topics as ethnic and regional differences within national societies, population change, social consequences of economic changes, changing stratification systems, values, institutional change.

165. Physical and Cultural Backgrounds of Personality (3) I

Prerequisite: Anthropology 1A or 100A or Sociology 1.

Race and culture; variation in human structure and function; variation and patterning of culture; relation to personality; physical and cultural factors in personality formation; history and current problems of this area. (Formerly offered under the title: Ethnology and Race Psychology.)

166. Honors Course I, II (Credit to be arranged)

Refer to the Honors Program.

167. History of Anthropological Theory (3) I

Prerequisite: Anthropology 1A or 1B or 3 or 100A or 100B.

A review of the development of theories which lie behind the modern sciences of ethnology and archaeology. Applications of the theory of culture to field methods and interpretation of findings.

169-S. Backgrounds of Mexican Civilization (3) Summer

Mexico's archaelogical past and its bearing on historic and recent peoples and cultures. Conflicts between Aztec and Mayan cultures and western civilization. The relationship of Mexican civilization to other Latin American cultures.

172. Indian Cultures of the Southwest (3) II

Prerequisite: Anthropology 1B or 3, or consent of instructor.

Indian cultures of the past and present in the Southwestern states. Arts, crafts, architecture and religion as revealed through archaeology and ethnology.

173. Archaeological Field Methods (3) II

Prerequisite: Anthropology 102.

Application, through excavation, laboratory analysis, and preparation of reports, of the methods and techniques of archaeology.

174. Prehistoric Archaeology of Europe (3) II

Prerequisites: Anthropology 1A and 1B, or 100A and 100B.

A review of the Stone Age, Bronze Age, and Iron Age cultures of Europe, North Africa, and the Middle East. Industries, habitations, and art of peoples antecedent to recorded history. Methods of investigation used in reconstructing prehistoric civilizations.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3)

An intensive study of one phase of anthropology, such as archaeology, ethnography, ethnohistory, primate behavior, social anthropology, or research methods in these areas. May be repeated with new subject matter for additional credit.

298. Special Study (1-6)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Individual study directed toward the preparation of a paper upon a specific problem. Six units maximum credit.

ART

IN THE DIVISION OF THE FINE ARTS

Faculty

Emeritus Faculty: Andrews

Professors: Ruocco, Sorenson, Swiggett (Chairman)

Associate Professors: Bigelow, Dirks, Longenecker, Wallace

Assistant Professors: Baxter, Bowne, Fisch, Hopkins, Lingren, Olds, Rowan, Tanzer

Instructor: Jamieson

Lecturers: Hunter, L., Sturdevant

Offered by the Department

Master of arts degree with a major in art; and a master of arts degree for teaching service with a concentration in art. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in art with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in art with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in art. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section of this catalog on Professional Curricula in Education.

ART APPRECIATION, HISTORY AND ORIENTATION

Many students, regardless of the field in which they may be majoring, recognize the need for an intelligent approach to the subject of art and art appreciation. However, due to the popular feeling that art is a subject requiring "talent," these students may refrain from enrolling in art courses. For students who desire a better understanding of art, but who do not hope to acquire any of the art skills, the following courses are recommended:

	Units
Art 5, Art Orientation	2
Art 50A-50B, History and Appreciation of Art	4
Art 51, Survey of Art of the Middle Americas	2
Art 52A-52B, Survey of Oriental Art	6
Art 8, Home Furnishings	2

Other courses which require certain skills but which are not beyond the ability of the average college student are:

Art 61, Design in Crafts	3
Art 6A, Design	2
Art 94, Costume design	2

LOWER DIVISION COURSES

A. Drawing and Composition (2) I, II

Six hours. No prerequisite.

Problems involving perspective to develop ability to draw still life, furniture, exteriors, interiors, and the like.

B. Drawing and Composition (2) I, II

Six hours. No prerequisite.

Drawing of mechanical and natural forms by the use of line and value. Emphasis on proportion and structure. Some quick sketching, gesture and contour drawing.

5. Art Orientation (2) I

Two lectures. No prerequisite.

An illustrated lecture course dealing with aesthetic meaning and its relation to the structure of art products. Designed to increase both understanding and appreciation of the visual world in general and of the fine arts in particular.

6A. Design (2) I, II

Five hours. No prerequisite.

Fundamentals of design and composition and theory of color. Basic course used as a prerequisite for all advanced work. Not open to students with credit in Art 9.

6B. Design (2) I, II

Five hours.

Prerequisite: Art 6A.

Original work in creative design and representation with special stress on modern tendencies.

7. Line, Color and Display (2) I, II

Six hours. No prerequisite.

The principles of line, color and arrangement applied to store and window display. Study and observation of windows, color and materials used in display. Building models and practical problems in arranging colors, textures, and forms in windows to fit different kinds of merchandise. (Students who may later wish to apply for upper division credit for this course as applied to a major will be required to do additional work.)

8. Home Furnishings (2) I, II
Two lectures. No prerequisites.
An appreciative study of the contemporary home, its interior and surroundings.

9. Design for Teachers (3) I, II
Six hours. No prerequisite.
A fundamental course in design introducing students at the aesthetic use of color and spacing and including those special skills and the handling of those materials required for teaching in the elementary schools. Not open to students with credit in Art 6A or 6B.

10. Crafts in the Elementary Schools (3) I, II
Six hours.
Prerequisite: Art 9.
A basic craft course approached from the creative viewpoint and employing the techniques, materials and tools appropriate for the elementary grades. Not open to students with credit in Art 61A, 110, or 161A.

13. Furniture Design (2) I, II
Six hours.
Prerequisite: Art 6A.
Study of the principles of design through the making of furniture.

14A. Lettering (2) I, II
Six hours.
Prerequisite: Art 6A.
Fundamental art principles applied to lettering, extension of verbal statement through accurate lettering and (original) problems using letter characters as design elements. General introduction to type through hand lettering and typographic design.

14B. Posters and Commercial Art (2) II
Six hours.
Prerequisite: Art 14A.
The application of lettering to posters, newspaper and magazine advertising, and other forms of commercial art. The study of composition combined with lettering and special study of modern tendencies in publicity.

15A. Life Drawing (2) I, II
Six hours.
Prerequisite: Art B.
Drawing from the nude model.

15B. Life Drawing (2) I, II
Six hours.
Prerequisite: Art 15A.
Continuation of Art 15A.

16A. Oil Painting (2) I, II
Six hours.
Prerequisite: Art A or B.
Composition of still-life and landscape in color.

16B. Oil Painting (2) I, II
Six hours.
Prerequisite: Art 16A.
Landscape and more advanced composition in color.

17A. Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Creative design in such materials as clay, wood, stone, concrete, etc.

17B. Sculpture (2) I, II
Six hours.
Prerequisite: Art 6B or consent of instructor.
Continuation of Art 17A.

18A. Watercolor Painting (2) I, II
Six hours.
Prerequisites: Art A and B, or consent of instructor.
Composition of still-life and landscape in watercolor.

18B. Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18A.
Continuation of Art 18A.

50A. Appreciation and History of Art (2) I, II
Two lectures. No prerequisite.
A survey of art development in painting, sculpture, architecture, and handicrafts from the dawn of art to the Renaissance. Illustrated.

50B. Appreciation and History of Art (2) I, II
Two lectures. No prerequisite.
The period from the Renaissance through the modern school treated in the same manner as in 50A.

51. Survey of the Art of Middle America (2) II
Two lectures. No prerequisite.
A study of Middle American art from earliest time to the present.

52A-52B. Survey of Oriental Art (3-3)
Three lectures.
Prerequisite: Art 52A is prerequisite to 52B.
A study of the art of the great cultures of the Orient.

61. Design in Crafts (3) I, II
Six hours.
Prerequisite: Art 6A.
Study of visual and structural form in crafts.

70A. Jewelry (2) I, II
Six hours.
Prerequisite: Art 6A or 9.
Design and fashioning of jewelry and tableware.

70B. Jewelry (2) I, II
Six hours.
Prerequisite: Art 70A.
Continuation of Art 70A.

80A. Weaving (2) I, II
Six hours.
Prerequisites: Art 6A and 61, or Art 9 and 10.
Study of structure and design of woven fabrics. A variety of exercises in traditional, contemporary, and experimental weaves using a wide range of materials. Introduction to the basic mechanics and techniques of hand weaving.

80B. Weaving (2) I, II
Six hours.
Prerequisite: Art 80A.
Continuation of Art 80A.

94A. Costume Design (2) I, II
Six hours.
Prerequisite: Art 6A.
Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

94B. Costume Design (2) I, II
Six hours.
Prerequisite: Art 94A.
Continuation of Art 94A.

95A. Interior Design (2) I, II
Six hours.
Prerequisites: Art A and 6A.
The consideration of the house as a unit; the arrangement of garden, house, floor plan and furniture as functional and decorative problems.

95B. Interior Design (2) I, II
Six hours.
Prerequisite: Art 95A.
Continuation of Art 95A.

UPPER DIVISION COURSES

100A. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art B.
A course in drawing with color wherein an objective attitude is taken toward the qualitative aspect of visual subject matter. Objects are studied and represented as visual stimuli rather than as stereotypes.

100B. Advanced Drawing (2) I, II
Six hours.
Prerequisite: Art 100A.
A course in drawing with color wherein objects are represented in such a manner as to include kinaesthetic responses. Aesthetic organization of materials is stressed.

105-S. Classroom Display for Teachers (3) Summer
A lecture and workshop course for elementary and secondary teachers in principles and techniques of modern display to meet various subject, classroom, and school requirements. Special attention to individual problems and needs.

106A. Printmaking (2) I, II
Six hours.
Prerequisites: Art B and 6A.
Introduction to printmaking media: woodcut, wood-engraving, serigraphy, lithography, and intaglio (copper and zinc engraving, drypoint, etching, aquatint, and mixed media). Special emphasis on technical processes.

106B. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106A.
Concentration upon the creation of fine prints in media selected from those studied in Art 106A.

106C. Printmaking (2) I, II
Six hours.
Prerequisite: Art 106B.
Continuation of Art 106B with advanced creative studies in printmaking.

107. Color and Design in Merchandise (2) I, II
(Same course as Bus. Adm. 159)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

110. Advanced Crafts in the Elementary Schools (2) I, II
Five hours.
Prerequisite: Art 6A.
An advanced design-craft course in which the activities, materials and tools employed are appropriate for the elementary grades. Not open to students with credit in Art 10 or 61.

111A. Industrial Design (2) I, II
Six hours.
Prerequisites: Art A and 6B, or consent of instructor.
Design of objects for manufacture with reference to their use, materials, and in accordance with factory practices and machine techniques. Practice in the techniques of presentation, working drawings, rendering in perspective and scale models.

111B. Industrial Design (2) I, II
Six hours.
Prerequisite: Art 111A.
Continuation of Art 111A.

112A. Design and Composition (2) I, II
Six hours.
Prerequisites: Art A, B, 6B, and 16A.
Structure in picture making. The controlled use of line, value, color, and texture to organize the effect of depth, movement, volume, etc., in the recognizable image. Oil technique.

112B. Design and Composition (2) II
Six hours.
Prerequisite: Art 112A or consent of instructor.
Continuation of Art 112A.

113A. Advanced Furniture Design (2) I, II
Six hours.
Prerequisite: Art 13 or consent of instructor.
Principles of design through the making of furniture.

113B. Advanced Furniture Design (2) I, II
Six hours.
Prerequisite: Art 113A.
Continuation of Art 113A.

114A. Design for Advertising (2) I
Six hours.
Prerequisite: Art 14B or consent of instructor.
Advanced course for advertising design students. Aims to develop professional concepts and techniques through student projects.

114B. Advanced Advertising Design (2) II
Six hours.
Prerequisite: Art 114A.
Advanced study with emphasis on the development of a portfolio of advertising design samples by the individual student.

114C. Advanced Advertising Design (2) I, II
Six hours.
Prerequisite: Art 114B.
Continuation of Art 114B.

115A. Life Drawing and Painting (2) I, II
Six hours.
Prerequisites: Art 15A and 16A.
Drawing and painting from nude and costume models.

115B. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115A.
Continuation of Art 115A.

115C. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115B.
Continuation of Art 115B.

115D. Life Drawing and Painting (2) I, II
Six hours.
Prerequisite: Art 115C.
Continuation of Art 115C.

116A. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 16A or 16B.
Painting in oil from still life, landscape, or models, stressing composition.

116B. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116A.
Continuation of Art 116A.

116C. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116B.
The influence of art media and picture plane on aesthetic organization in representational painting.

116D. Advanced Painting (2) I, II
Six hours.
Prerequisite: Art 116C.
Continuation of Art 116C.

117A. Advanced Sculpture (2) I, II
Six hours.
Prerequisites: Art 6B and 17A or 17B; or consent of instructor.
Creative design in such materials as clay, wood, stone, concrete, etc.

117B. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117A.

117C. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117B.
The influence of art media and tools on aesthetic organization in sculpture in relief and in the round.

117D. Advanced Sculpture (2) I, II
Six hours.
Prerequisite: Art 117C.
Continuation of Art 117C.

118A. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 18B or consent of instructor.
Composition of still life and landscape in watercolor.

118B. Advanced Watercolor Painting (2) I, II
Six hours.
Prerequisite: Art 118A.
Continuation of Art 118A.

119A. Ceramics (2) I, II
Six hours.
Prerequisite: Art 6A or 9.
An introduction to ceramic design. Basic methods of forming, decorating, glazing and firing pottery forms with emphasis on the use of the potter's wheel.

119B. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119A.
Continuation of Art 119A. Further development of knowledge, skills and philosophy of ceramics through individual creative projects.

119C. Ceramics (2) I, II
Six hours.
Prerequisite: Art 119B.
Continuation of Art 119B with advanced creative projects.

120A. Advanced Design (2) I, II
Six hours.
Prerequisites: Art B and 6B.
Advanced work in pure design, two and three dimensional. Re-examination of color theory and design principles.

120B. Advanced Design (2) I, II
Six hours.
Prerequisite: Art 120A.
Continuation of Art 120A.

153. Ancient Art (3) Irregular
Three lectures.
Prerequisites: Art 50A and 50B, or equivalents.
Development of painting, sculpture, architecture and crafts from prehistoric times to the fall of Rome.

154. Medieval Art (3) Irregular
Three lectures.
Prerequisites: Art 50A and 50B, or equivalents; or consent of instructor.
Development of painting, sculpture and architecture from the time of Constantine through the Gothic period.

155. Renaissance Baroque and Rococo Art (3) Irregular
Three lectures.
Prerequisites: Art 50A and 50B, or equivalents.
Development of painting, sculpture and architecture from the Renaissance through the rococo period.

156. History of Modern Art (3) II
Three lectures.
Prerequisites: Art 50A and 50B, or equivalents; or consent of instructor.
Development of painting, sculpture and architecture from the French Revolution to the present.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170A. Jewelry (2) I, II
Six hours.
Prerequisites: Art 70A and 70B, or consent of instructor.
Advanced problems in design and fashioning of jewelry and tableware.

170B. Jewelry (2) I, II
Six hours.
Prerequisite: Art 170A.
Continuation of Art 170A.

175. Problems in Art for Teachers (1-3) I, II, Summer

Prerequisite: Consent of instructor.

Special problems in design adapted to the needs of teachers in service. May not be used to satisfy any pattern requirement for a credential. May be repeated once for credit.

180A. Advanced Weaving (2) I, II

Six hours.

Prerequisites: Art 80A and 80B, or consent of instructor.

Advanced problems in fabric design and weave construction including tapestry and rug weaving techniques.

180B. Advanced Weaving (2) I, II

Six hours.

Prerequisite: Art 180A.

Continuation of Art 180A.

190. Principles and Elements of Visual Aesthetic Organization (2)

Three hours.

Prerequisites: Senior standing and Art 5 or 51.

An intensive investigation of visual aesthetic materials and the psychological principles involved in aesthetic organization.

193. Drawing and Illustration for Graphic Communication (2) I

Six hours.

Prerequisites: Art A, B, 6A, 115A.

A course involving the disciplines of realistic descriptive illustration including problems in imaginative, aesthetically refined painterly illustration. Media to include gouache, watercolor, scratch board, mixed media, and pen and ink.

194A. Costume Design (2) I, II

Six hours.

Prerequisite: Art 6A.

Original designs of modern costumes suitable to the individual or to distinct types; the drawing of fashion figures; the rendering of fabrics and textures.

194B. Costume Design (2) I, II

Six hours.

Prerequisite: Art 194A.

Continuation of Art 194A.

195A. Advanced Interior Design (2) I, II

Six hours.

Prerequisite: Art 95B or consent of instructor.

Theory and practical use of color, space and furniture arrangement.

195B. Advanced Interior Design (2) I, II

Six hours.

Prerequisite: Art 195A.

Continuation of Art 195A.

196. Fashion Layout (2) II

Six hours.

Prerequisites: Art 94A and 114A.

A course including special emphasis in developing fashion illustration, style on a personal level and its application to advertising layout: newspaper, magazines, and editorial.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of the instructor.

GRADUATE COURSES

206. Seminar in Creative Printmaking (3)
Prerequisites: Art 106A and 106B.
Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. May be repeated once with new content.

216. Seminar in Creative Painting (3)
Prerequisites: Art 112A, 112B, 116A, and 116B.
Aesthetic organization of selected visual subject matter in the medium of colors in oils. May be repeated to a maximum of six units.

217. Seminar in Creative Sculpture (3)
Prerequisites: Art 117A, B, C, and D.
Aesthetic organization of selected subject matter in the media of sculpture. May be repeated to a maximum of six units.

219. Seminar in Creative Crafts (3)
Prerequisites: Six units completed in upper division courses in sculpture or ceramics or printmaking or a combination of these courses.
Advanced creative work in selected craft media. May be repeated to a maximum of six units.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

292A-292B. Seminar in Art History (3-3)
Prerequisites: Art 50A and 50B, or equivalents.
An intensive study of the development of art styles in selected historical periods.

294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)
Prerequisite: A semester course in art appreciation.
An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ASTRONOMY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus Faculty: Skilling

Professors: Huffer, Smith, C. E. (Chairman, Astronomy-Physical Science)

Assistant Professors: Schopp, Silvernail

Lecturer: Krieger

Offered by the Department of Astronomy-Physical Science

Major in astronomy with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in astronomy with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in astronomy. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1. Descriptive Astronomy (3) I, II

Methods of astronomy and of the physical nature of members of the solar system, our galaxy and other galaxies. Telescopes will be used for occasional observations. Not open to astronomy majors. Not open to students with credit in Astronomy 50.

9. Practice in Observing (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Astronomy 1 or 50.

A course designed to supplement Astronomy 1. The course will include constellation study, use of astronomical co-ordinates, and descriptive observations of celestial objects with telescope.

10. Advanced Observational Astronomy (1) II

Three hours of laboratory.

Prerequisite: Astronomy 9.

A continuation of Astronomy 9. More advanced problems in observing will be taken up such as the determination of latitude by observations of Polaris, transit observations, astronomical photography, etc.

12. Elementary Navigation (3) I

Three hours of laboratory.

Recommended prerequisites: Astronomy 1 and 9.

A study of compass corrections, time, line of position, use of celestial co-ordinates, etc. A few class hours devoted to the use of tables such as H.O. 214 for the solution of astronomical triangles.

50. Physics of the Solar System (3) I

Prerequisites: Credit or concurrent registration in Mathematics 50 and Physics 4A.

A mathematical treatment of the structure and composition of the Solar System with a study of the physical nature of the sun, planets, satellities, comets, and meteors. Not open to students with credit in Astronomy 1.

51. Physics of the Stellar System (3) II

Prerequisites: Mathematics 50 and Physics 4A.

Application of mathematical and physical principles to stellar astronomy and the universe. Not open to students with credit in Astronomy 1 or 2.

UPPER DIVISION COURSES

103. Astronomical Optics (3) II

Two lectures and three hours of laboratory.

Prerequisites: Astronomy 50, or Physics 4C, or Physics 2B and 3B.

Theory and applications of optical instruments used in astronomy. In the laboratory the students are required to complete an approved project in optical instrumentation.

104A-104B. Practical Astronomy (3-3)

Two lectures and three hours of laboratory.

Prerequisites: Astronomy 50 and 9 and credit or concurrent registration in Mathematics 51. Astronomy 104A is prerequisite to 104B.

Determination of latitude, longitude, and time. Study of methods of reduction of photographic plates. Study of precession, nutation, proper motion, refraction, and adjustment of equatorial telescope.

105. Historic Development of Astronomy (3) I

A study of the more important problems and astronomical concepts in the light of their historical development. Particular attention is given to the biography and contributions of the more important astronomers, such as Galileo, Kepler, Newton, Herschel, Bessel, etc.

107. Method of Least Squares and Computing Practices (3) I

Prerequisite: Mathematics 52.

Fundamental principles with applications in the fields of astronomy, physics, and engineering.

110. Introduction to the Study of Variable Stars (3) II

Prerequisites: Astronomy 51 and Physics 4C.

A study of variable stars, their spectra, periods, methods of observing, and computations of elements. Observations will be obtained from the literature, but some observing will be done with the photoelectric photometer on the 24" telescope.

112A-112B. Astrophysics (3-3)

Prerequisites: Physics 4C and Astronomy 51. Astronomy 112A is prerequisite to 112B.

An application of modern physics to a study of the sun and the stellar system. A large part of this course will deal with the application of spectroscopy to the study of celestial objects.

113. Surveyor's Course in Practical Astronomy (3) II

Two lectures and three hours of laboratory.

Prerequisite: Engineering 2 or consent of instructor. Astronomy 50 and 9 desirable.

The principles of spherical astronomy adapted to the needs of engineering students. Computation and observation.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

180. Celestial Mechanics (3) I, II

Prerequisite: Mathematics 52.

A study of the problem of two bodies based on the solutions of differential equations using Newtonian mechanics. Potential theory; geometrical interpretation of perturbations; calculation of planetary positions.

196. Advanced Topics in Astronomy (2 or 3) I, II

Prerequisite: Consent of instructor.

Selected topics in theoretical astronomy or astrophysics. May be repeated with new material for a total of six units, upon approval of instructor.

198A. Senior Project (1) I

One lecture-discussion period.

Prerequisite: An acceptable master plan for graduation within one year.

Consists of the selection and design of individual projects; oral and written progress reports.

198B. Senior Project (2) II

Six hours of laboratory.

Prerequisite: Astronomy 198A.

Laboratory work, progress reports, oral and written reports.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisites: Three units in astronomy and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced astronomy. May be repeated with new subject matter for additional credit.

210. Binary Stars (3)

Prerequisite: Astronomy 112B.

An intensive study of visual, spectroscopic, and eclipsing binaries, including the determination of orbits.

220. Galactic and Extragalactic Structure (3)
Prerequisite: Astronomy 112B.
Types, movements and characteristics of stars in the galaxy and a similar study of extragalactic structure.

230. Stellar Interiors (3)
Prerequisite: Astronomy 112B.
Structure of the interior of stars including the details of the reactions by which energy is obtained and the evolution of stars.

280. Orbit Theory and Computation (3)
Prerequisite: Astronomy 180.
A study of the derivation of the methods of determining orbits of comets, asteroids, and planets. The computation of an orbit will be required.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

BIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Emeritus Faculty: Johnson, Myrtle E.
Professors: Olson, A., Ratty (Chairman), Taylor, K.
Associate Professors: Brandt, Jameson, McBlair, Shepard
Assistant Professors: Baer, Hazen, Resseguie, Sloan, Taylor, M.

Offered by the Department of Biology

Master of arts or master of science degree with a major in biology; and a master of arts degree for teaching service with a concentration in biology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in biology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in biology with the A.B. degree or B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in biology. (Described in the section on the General Programs.)

Curricula in the biological sciences which prepare for the fields of entomology, fish and game, plant quarantine, and wildlife. (Consult the adviser.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

HIGH SCHOOL PREPARATION

Students in high school planning to enter any of the biological sciences should include in the high school program the following subjects: Elementary algebra, plane geometry, intermediate algebra, trigonometry, chemistry, and physics. Three years of French or German are recommended.

OTHER CURRICULA IN THE BIOLOGICAL SCIENCES

Within the majors offered in the biological sciences, curricula may be arranged for students interested in preparing for the fields of entomology, fish and game, plant quarantine, and wildlife. Students planning to specialize within the area of the biological sciences should consult with the departmental adviser in selection and arrangement of courses.

LOWER DIVISION COURSES

1. The Ideas of Biology (3) I, II

General concepts of biology with emphasis on the biology of man in relation to modern life. Not open to students with credit in Biology 3, 4, or 5.

3. Principles of Biology (3) I, II

Two lectures and three hours of laboratory. No prerequisite.

A consideration of basic biological phenomena. Not open to students with credit in Biology 1 or 5.

4. Natural History of Plants and Animals (3) I, II

Two lectures and three hours of laboratory. No prerequisite.

An introduction to plants and animals in relation to their environments and to one another, with emphasis on local forms and their habitats. Not open to students with credit in Biology 5.

5. Fundamentals of Biology (5) I, II

Three lectures and six hours of laboratory.

Prerequisite: High school chemistry or credit or concurrent registration in a college chemistry course.

Major biological concepts common to the areas of botany, microbiology, and zoology. Students with credit for Biology 3 or 4 may enroll, but will receive only two additional units of credit.

15. Introduction to Quantitative Biology (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Biology 5 and Mathematics 3.

Methods and experience in defining and solving quantitative problems in biology.

UPPER DIVISION COURSES

101. General Physiology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 5 and 15; Chemistry 1A and 1B or 2A and 2B; and Physics 2A, 2B, 3A, and 3B.

The physiological processes at the cellular, tissue and organ levels.

103. General Cytology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.

The structure and function of cells and cell inclusions of plants and animals, including the chemical and physical properties of protoplasm and cytological methods.

105. Developmental Biology (4) I

Two lectures and six hours of laboratory.

Prerequisites: Zoology 50, Botany 51, and Chemistry 1A-1B.

Principles of growth and differentiation in living systems; selected experimental approaches to problems of development.

110. Ecology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.

Relationships between organisms and the environment; field study in local marine, fresh water, mountain, chaparral, and desert habitats.

111. Aquatic Biology (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Biology 5 and 15; and Chemistry 1A and 1B or 2A and 2B.

Biological, chemical and physical considerations of inland waters.

112. Fisheries Biology (3) II
Two lectures and three hours of laboratory.
Prerequisite: Biology 15.
Theory and practices of fishery management. Life histories and biology of important game and food fishes.

113. Biological Oceanography (4)
Two lectures and six hours of laboratory.
Prerequisites: Biology 15, Zoology 50, Chemistry 1A, 1B, Physics 2A, and 2B.
A study of benthic and pelagic marine organisms and their environmental parameters.

135. Scientific Illustration (3) I
Two lectures and three hours of laboratory; field trips.
Preparation of illustrative materials, inked drawings, charts, lettering, models, still and movie photography, and photomicrography.

150A-150B. Radiation Biology (2-2)
Prerequisites: Physics 120B or 121 or equivalent; and a college course in biology. Biology 150A is prerequisite to 150B. Recommended: Biology 101.
The effects of ionizing radiation on biological systems at the cellular, multicellular, and population levels with a discussion of other electromagnetic phenomena where revelant, followed by the theory and application of tracer technique to biology.

151. Radioisotope Techniques in Biology (3)
One lecture and six hours of laboratory.
Prerequisites: Completion or concurrent registration in Biology 150A, and consent of instructor.
The principles and application of radioisotopes in biology. Radionuclide measurement, safe handling, tracer and radioautography techniques.

155. Genetics (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and 15.
Principles of plant and animal genetics, with experiments and demonstrations illustrating the mechanisms of heredity.

157. Cytogenetics (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 155.
The physical basis of heredity. Study of the chromosomes and chromosome behavior in relation to problems in heredity and evolution.

158. Conservation of Wildlife (3) I, II
Prerequisite: A college course in biology or consent of instructor.
A survey of plant and animal resources with emphasis on their conservation and intelligent use.

160. Experimental Evolution (3) II
Two lectures and three hours of laboratory.
Prerequisite: Biology 15.
The theories of evolution and speciation with emphasis on the methods of study of modern problems.

161. History of Biology (3) I, II
Prerequisite: A college course in biology.
Lectures and reports tracing biological scientific development, with emphasis on the influence of personalities and trends of the times. Not more than three units in the history of biology may be counted for graduate credit.

162. Source Material in the History of Biology (3)
Prerequisite: Biology 161.
A study of original papers of significance to the history of biology. Not more than three units in the history of biology may be counted for graduate credit.

165. Biology of Natural Populations (3)

Prerequisite: A college course in biology.

A consideration of the relation of modern concepts of genetics, ecology and physiology to natural populations with emphasis on the problems of human populations.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

167. Biology for Elementary School Teachers (3)

Two lectures and three hours of laboratory.

Prerequisites: A college course in biology and admission to elementary education.

A comprehensive approach to the study of living things, including the indentification, adaptations, life histories, distribution and value of the more common animals and plants.

170-S. Contemporary Problems in Biology (1) Summer

A series of six weekly lectures on varied aspects of biology by scientists engaged in research. Reading and reports required of students enrolled for credit. These lectures are open to the public. May be repeated for a total of 3 units.

175. Statistical Methods in Biology (3) I

Two lectures and three hours of laboratory.

Prerequisites: Biology 15 and Mathematics 22, or equivalents.

Application of statistical techniques to biological data. Not open to students with credit for another upper division course in statistics except with written approval of the chairman of the department offering the student's major, to be filed with the Evaluations Office.

198. Methods of Investigation (2) I, II

One hour of discussion and three hours of laboratory.

Prerequisites: Junior standing and a major in the Division of the Life Sciences.

Individual and original investigations in biology; class reports. Four units maximum credit.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisites: 15 units in biological science with grades of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced biology. May be repeated with new content for additional credit.

210. Seminar in Cellular Biology (2)

Prerequisite: Biology 101 or 103, or consent of instructor.

May be repeated with new content to a maximum of four units.

220. Seminar in Growth and Development (2)

Prerequisite: Zoology 100 or consent of instructor.

May be repeated with new content to a maximum of four units.

230. Speciation (3)

Prerequisites: Biology 110 and 155; or Biology 160.

Concepts and principles of the origin of species.

231. Seminar in Ethology and Comparative Psychology (2)

(Same course as Psychology 231)

Prerequisite: Biology 110 or Psychology 114, or consent of instructor.

A seminar in the types of species specific behavior patterns and their function in the living systems of animals. May be repeated with new content to a maximum of four units.

240. Seminar in Ecology (2)
Prerequisite: Biology 110 or 112, or consent of instructor.
May be repeated with new content to a maximum of four units.

250. Biogeography (3)
Prerequisite: Biology 110 or 160.
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.

260. Seminar in General Physiology (2)
Prerequisite: Biology 101 or Botany 107, or consent of instructor.
May be repeated with new content to a maximum of four units.

270. Seminar in Genetics (2)
Prerequisite: Biology 155 or consent of instructor.
May be repeated with new content to a maximum of four units.

276. Physiological Genetics (3)
Prerequisites: Biology 155 or Zoology 164; Chemistry 101A. Recommended: Chemistry 115A-115B.
Biochemical aspects of the genetics of microbial and human systems.

290. Bibliography (2)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BOTANY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Emeritus Faculty: Harvey
Professor: Gallup (Chairman)
Associate Professor: Preston
Assistant Professors: Spanis, Wedberg

Offered by the Department

Master of arts degree with a major in biology and an emphasis in botany. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in botany with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in botany with the B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in botany. (Described in the section on the General Program.)

LOWER DIVISION COURSES

50. Nonvascular Plants (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The development and phylogenetic relationships of the algae and fungi.

51. Vascular Plants (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The structure, development and phylogenetic relationships of the Bryophytes and vascular plants.

UPPER DIVISION COURSES

102. Mycology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Botany 50 or consent of instructor.
The structure, food relations, and classification of fungi.

104. Plant Anatomy (4) I
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
The arrangement of structural elements within plant organs, with emphasis on cell and tissue types.

107. Plant Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5, 15, 101; and Chemistry 1A and 1B.
The activities of plants, including food manufacture, absorption, conduction, transpiration, respiration, growth and movement.

112. Cultivated Trees and Shrubs (3) I
One lecture and six hours of laboratory and field work.
Prerequisite: Biology 5. Botany 114 is recommended.
Identification of the common cultivated trees and shrubs of the San Diego region. Trips to local parks and private gardens.

114. Systematic Botany (4) II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5 and Botany 51.
Kinds, relationships, systematic arrangement, and geographical distribution of vascular plants; collection and identification.

119-S. Field Botany (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Local native vegetation with emphasis on ecological units within floristic areas. Primarily for students not majoring in the Life Sciences Division.

126. Plant Pathology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Botany 50, 51 and 102.
A practical course dealing with the principles of disease in plants, control measures, and quarantine procedures. Emphasis is placed on the determination and control measures of those pathogenic organisms which affect crops, trees and shrubs and nursery stock.

162. Agricultural Botany (2) II
Field trips to be arranged.
Prerequisites: Biology 5 and Botany 51 or Zoology 121.
A study of California crop plants, their general identification, cultural methods, and regional distribution.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

172. Palynology (3) II
One lecture and six hours of laboratory.
Prerequisite: A course in college biological science.
Principles and methods of pollen and spore diagnosis, with reference to use in taxonomy, paleontology, anthropology, and medicine.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in botany with grades of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced botany. May be repeated with new content for additional credit.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

BUSINESS ADMINISTRATION

IN THE DIVISION OF BUSINESS ADMINISTRATION

(A member of the American Association of Collegiate Schools of Business)

FACULTY

Department of Accounting

Emeritus Faculty: Wright
Professors: Brown, E., Lamden, Odmark
Associate Professors: Brodshatzer, Dodds, Ferrel (Chairman)
Assistant Professors: Harned, Snudden
Lecturers: Barkley, Dunn, Engle, Kronemyer, Kuhn, Martinelli

Department of Business Law and Finance

Associate Professors: Bridenstine, Hippaka (Chairman), Reznikoff
Assistant Professors: Ahrens, Hungate, Lane, Nye, W., Sinsheimer

Department of Management

Professors: Belcher, Hodge, Torbert
Associate Professors: Peters (Chairman), Srbich
Assistant Professors: Galbraith, Pierson
Lecturers: Markle, Myrick

Department of Marketing

Associate Professors: Barber, Hale (Chairman), Lawson, D. F., Sharkey
Assistant Professors: Darley, Saigh, Wotruba
Lecturer: de Julien

Department of Business Education

Emeritus Faculty: Amsden
Professors: Crawford, M. L. (Chairman), Gibson, Straub
Associate Professors: Archer, Langenbach, Le Barron
Assistant Professor: Pemberton
Lecturer: Stubbs

CURRICULA

Offered by the Division

Master of science degree in business administration with concentrations available in eight areas; and a master of arts degree for teaching service with a concentration in business education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Majors and minors for the bachelor's degree. (Described in the section on Professional Curricula in Business Administration.)

Certificates (nondegree) in Industrial Management and in Office Management, offered in the Extension Program. (Described in the section on Preprofessional and Nondegree Curricula.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

COURSES IN BUSINESS ADMINISTRATION

LOWER DIVISION COURSES

1A-1B. Principles of Accounting (2-2) or (4) I, II

Three hours of lecture and laboratory per two units of credit.

Prerequisite: Business Administration 1A is prerequisite to 1B.

Introduction to the theory and principles of accounting as they relate to single proprietorship, partnership and corporate types of business.

30A. Business Law (3) I, II

Introduction to legal institutions; nature and sources of law; the judicial system; legal concepts and cases involving contracts, agency, and sales.

30B. Business Law (3) I, II

Prerequisite: Business Administration 30A.

Legal concepts and cases involving partnerships, corporations, negotiable instruments, property, security devices, creditors' rights and bankruptcy.

50. Salesmanship (2) I, II

Theoretical and psychological backgrounds of salesmanship; newer concepts of selling; the selling of ideas and services; steps in a sale: Attention, interest, desire, closing; the development of clienteles and of good will; the personal factor in salesmanship.

71. Beginning and Personal-use Typewriting (3) I, II

Five hours of lecture and activity.

Fundamentals of typewriting. Development of personal-use skills. Not open to students with credit for high school typewriting.

72. Typewriting (3) I, II

Five hours of lecture and activity.

Advanced typewriting. Production work and problem typing.

73. Business Machine Systems (1 to 3) I, II

Two hours for each unit of credit.

Theories of figuring, calculating, and integrated-data-processing machine systems. Instruction periods emphasize case studies of systems-machine interrelationships and are correlated with machine operations.

75A-75B. Shorthand (3-3) I, II

Five hours of lecture and activity.

Prerequisite: Business Administration 75A is prerequisite to 75B.

Gregg shorthand theory; dictation and transcription.

76. Advanced Shorthand (3) I, II

Prerequisites: Business Administration 75A and 75B.

Development of speed in writing and transcription.

80. Business Writing (3) I, II

Prerequisite: English 1A.

Written communications in typical business situations.

UPPER DIVISION COURSES

100. Intermediate Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theories and principles underlying balance sheet and income statements of partnerships and corporations.

101. Advanced Accounting (3) I, II
Prerequisite: Business Administration 100.
Problems involved in ventures, consignments, installment sales, estate accounting, consolidations, insurance and foreign exchange.

102. Cost Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theories and practices of job order, process cost, and standard cost systems; distribution cost analysis; use of cost data for management control and planning.

106. Income Tax Accounting (4) I, II
Prerequisites: Business Administration 1A and 1B.
Theory and procedures in the preparation of federal and California income tax returns for individuals, partnerships and corporations.

107. Advanced Income Tax Accounting (2) I, II
Prerequisite: Business Administration 106.
Theories of taxation as related to personal holding companies, corporate distributions, liquidation and capital changes; fiduciary return preparation; brief survey of gift, estate and social security taxes.

108. Governmental Accounting (2) I, II
Prerequisite: Business Administration 100 or consent of instructor.
Principles of fund accounting useful in state and local governmental units, hospitals, colleges, and universities. Comparisons with commercial accounting emphasized. Includes study of budgetary accounting, appropriations, encumbrances, internal checks and auditing procedures.

112. Auditing (4) I, II
Prerequisite: Business Administration 101.
General principles of auditing; duties, ethics, and responsibilities of the auditor; procedures for verification of financial records used by public accountants and internal auditors; auditor's opinion and report.

114. Accounting Systems (2) II
Prerequisites: Business Administration 100 and 101.
General principles underlying the design and installation of accounting systems; survey of methods and procedures necessary for internal control applicable to various businesses; familiarization with potential and limitations of various data processing equipment.

115. Financial Statements (2) II
Prerequisite: Business Administration 100.
The construction, composition, analysis and interpretation of Balance Sheets, Income Statements and other related reports.

116. Controllership (2) II
Prerequisite: Business Administration 100 or consent of instructor.
The functions of the controller and his role in policy decisions; organization, techniques, and reports for financial and operating control. A case discussion approach is used. (Formerly entitled: Internal Auditing and Controllership.)

118. Advanced Business Law (3) I, II
Prerequisites: Business Administration 30A and 30B.
Principles and problems, including contractual relationships, obligations, trade regulations, and formation and operation of business entities.

119. C.P.A. Review (3) I, II

Prerequisites: Business Administration 101, 102, 106, 107, 108, 112, or consent of instructor.

An intensive review of the accounting principles and procedures covered in the accounting theory and accounting practice sections of the uniform C.P.A. examination prepared by the American Institute of Certified Public Accountants.

120. General Insurance (3) I, II

History of insurance; economic and social implications; principles of insurance contracts; theory of risk; law of large numbers. Survey of all major insurance fields and policies including life, fire, marine, inland marine, casualty and surety bonding.

121. Property and Casualty Insurance (3) I, II

Prerequisites: Business Administration 120.

All standard forms of insurance except life; includes automobile, liability, workmen's compensation and disability, fire, marine, and inland marine. Legal interpretation of contract coverages; underwriting problems, marketing of insurance, government supervision and control.

124. Life Insurance Principles and Practices (3) I, II

Prerequisite: Business Administration 120.

Economic and social aspects of life insurance; nature of life insurance and annuity contracts; basic legal principles; theory of probabilities, premiums, reserves, and nonforfeiture values; company operational activities; agency development and management.

125. Life Insurance Underwriting (3) II

Programming fundamentals with emphasis upon economic, actuarial, and legal principles, program coordination and integration with wills; guardianships; estate planning fundamentals; taxation; business life insurance. Analysis of life insurance selling as a career.

127. Fundamentals of Finance (3) I, II

(Same course as Economics 133)

Prerequisites: Economics 1A and 1B or 103A and 103B, and Business Administration 1A and 1B.

Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries and government regulation of finance. The cost of capital.

128. Investments (3) I, II

Investment principles and practices with emphasis upon problems of the small investor, such as tests of a good investment, sources of information, types of stocks and bonds, mechanics of purchase and sale, investment trusts, real estate mortgages, and the like.

129. Credit Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

Social, economic, and legal aspects of credit and lending policies. Analyzes the development and administration of credit and lending policies in domestic and foreign business relations, major financial institutions, and government.

130. Financial Analysis and Management (3) I, II

Prerequisites: Business Administration 127 or 1A and 1B, and Economics 135.

Evaluation of conditions and trends in the money and capital markets. Utilization of financial data as related to the problems of business enterprises. Emphasis on decision-making and research in finance.

131. Legal Factors in Business (3) I, II

Prerequisite: Business Administration 30A or consent of instructor.

The interaction of historical, sociological, and economic forces with the judicial process. Decision-making in law and its impact on business.

132. Fundamentals of Management (3) I, II

Prerequisite: Completion of lower division courses required in the major or minor.

An analysis of what a manager does, how he selects objectives, organizes essential activities, plans, directs and controls operations; fundamentals which guide a manager's decisions.

134. The Social Environment of Business (2) I, II

Prerequisite: Consent of instructor and senior standing.

An interdisciplinary study of American business enterprise in its cultural environment. The foundations of business; historical modifications; present relationship between business and society. The moral and ethical responsibilities of business and the businessman.

135. Production Management (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 132.

Analysis of management techniques applied to modern industrial enterprises. Survey of production activities with a special emphasis upon basic quantitative decision-making techniques.

136. Production and Quality Control (3) I, II

(Same course as Engineering 176)

Prerequisites: Business Administration 135 and Mathematics 130A.

Forecasting, planning and controlling production flow; techniques for planinng and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

137. Motion and Time Study (3) I, II

(Same course as Engineering 173)

Two lectures and three hours of laboratory.

Prerequisite: Business Administration 135.

Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

138. Systems and Data Analysis (3) I, II

Prerequisite: Business Administration 135 or consent of instructor.

The application of scientific management techniques to administrative systems; communication feedback and control techniques; data collection and processing; the use of high speed computing equipment within management systems.

140. Employee Relations (3) I, II

Prerequisite: Business Administration 132.

Problems of business and industry in dealing with employees, special attention to company and public policy, staffing, employee development, labor relations and employee motivation. Comparisons of current practices to underlying problems and theories.

141. Employee Relations Laboratory (1) I, II

Prerequisite: Credit or concurrent registration in Business Administration 140.

Investigation of employee relations practices and policies. Practice in interviewing, role playing, or in conducting field studies and related personnel research. (Formerly entitled: Personnel Management Laboratory.)

142. Wage and Salary Administration (3) I, II

Prerequisite: Business Administration 140.

Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice. Not open to students with credit in Political Science 146.

143. Problems in Employee Relations (3) II

Prerequisite: Business Administration 140.

The employee relations function. Analysis of current practices as effective solutions to problems in this area. Guided research into the nature of employment relations.

145. Human Factors in Management (3) I, II
Prerequisite: Business Administration 132 or Political Science 144.
Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management. Not open to students with credit in Political Science 145.

149. Business Policy (3) I, II
Prerequisites: Senior standing and consent of instructor.
Formulation and administration of policy; integration of the various specialties in business; development of over-all management viewpoint.

150. Marketing Principles (3) I, II
Prerequisites: Economics 1A and 1B.
Study of marketing functions, activities of producers, wholesalers, retailers and other middlemen; channels of distribution; integration of marketing activities; price policies; government regulation.

151. Problems of Marketing Management (3) I, II
Prerequisite: Business Administration 150.
An advanced course dealing with practical aspects of marketing. Solutions of problems faced by producers, wholesalers, retailers and other middlemen in the marketing of their products.

152. Retailing Principles (3) I, II
Prerequisite: Business Administration 150.
Study of retail stores, emphasizing the problems of store managers and merchandising executives; store location, organization, personnel, sales promotion, buying and handling of merchandise, inventory, turnover, and control methods. Problems of profitable operation under changing conditions.

153. Advertising Principles (3) I, II
Prerequisite: Business Administration 150.
Advertising as a sales promotional tool in marketing activities; consumer, market and product analysis; advertising media; preparation of advertisements; measurement of advertising effectiveness; economic and legal aspects of advertising; public relations; advertising campaigns.

154. Advertising Problems (3) I, II
Prerequisites: Business Administration 150 and 153, or consent of instructor.
Practice in applying accepted principles to specific problems. A variety of cases, including large, medium and small businesses are covered. Principles and solutions are developed through class discussion. Emphasis is on coordination of advertising with other marketing activities.

155. Public Relations (3) I
(Same course as Journalism 180)
Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

157. Market Research (3) I, II
Two hours lecture and three hours scheduled research activity.
Prerequisites: Business Administration 150 and Economics 2 or Mathematics 12.
Formal research techniques and analysis for marketing decisions; principles of decision making; laboratory practice in research methods.

159. Color and Design in Merchandise (2) I, II
(Same course as Art 107)
Six hours. No prerequisite.
Principles of line, mass, and color applied to the design of manufactured goods, especially consumer goods, and to merchandise display. Shape and color in relation to utility and sale value. Practical problems.

160. Merchandise Analysis (3) I
(Same course as Home Economics 160)
Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

161. Traffic Management (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
Organization and functions of a traffic department, routing policy on shipments, freight rates and classifications, receiving and shipping, loss and damage claims, warehousing, packing and loading, documentation, export and import shipments, government regulations.

162. Industrial Marketing and Wholesaling (3) I, II
Prerequisites: Business Administration 132 and 150, or consent of instructor.
Analysis of industrial market channels of distribution, advertising policies, merchandising techniques, applications and techniques of marketing research in industrial marketing and wholesaling; planning marketing programs for industrial products and wholesaling. (Formerly entitled: Industrial Marketing.)

163. Sales Management (3) I, II
Prerequisites: Business Administration 50 and 150.
Consideration of the structure of sales organizations; sales policies; selection, training, compensation, evaluation and control of the sales force; sales analysis; sales quotas; sales costs and budgets; markets and product research and analysis; co-ordination of personal selling with other forms of sales effort.

164. Purchasing and Buying (3) I, II
Prerequisites: Business Administration 132 and 150.
Policies for purchasing raw materials, parts, supplies and finished goods for manufacturing operations, for commercial uses, and for wholesale and retail resale. Buying procedures, inventory control, vendor relations, legal problems, quality control, financing.

165. Foreign Marketing (3) II
Prerequisite: Business Administration 150.
Bases and promotion of foreign marketing; foreign marketing organizations and methods; technical and financial features of international markets; selection of organization and trade channels. Determinants and principles of foreign marketing policies.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

170. Real Estate Principles and Practices (3) I, II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Functions and regulation of the real estate market; transfers of property, including escrows, mortgages, deeds, title insurance; appraisal techniques; financing methods; leases; subdivision development; property management.

171. Law of Real Property (3) II
Prerequisites: Business Administration 30A, 30B, and 170 or Economics 139; or consent of instructor.
Legal theory and practice of estates in land; landlord and tenant relationships; land transactions; mortgages and trust deeds; easements; land use; ownership rights in land; public land law.

172. Property Management (3) I
Prerequisite: Business Administration 170 or Economics 139, or consent of instructor.
Study of the rental markets, property management programs, collection procedures, lease forms, tenant and owner relations, rental techniques, maintenance and rehabilitation procedures, and accounts and records.

173. Real Estate Finance (3) I, II

Prerequisites: Economics 1A, 1B, (or 103A, 103B), Business Administration 30A, 30B, and 170 or Economics 139; or consent of instructor.

Methods of financing real estate; sources of real estate credit; loan servicing; governmental financial agencies; acquisition and sale of mortgages and trust deeds.

174. Real Estate Appraisal Theory (3) I

Prerequisites: Business Administration 170 or Economics 139, and Economics 138, or consent of instructor.

Introduction to theories, functions, and purposes of appraisals of residential and income properties: Methods of valuation, techniques of market data analysis, rehabilitation estimates.

180. Workshop in Business Education (2) Summer

Developments in business education areas such as (A) bookkeeping, (B) distributive and basic business education, (C) secretarial, and (D) typewriting. Opportunity provided for work on individual problems. May be repeated with new subject matter to a total of eight units.

181. Administration and Supervision of Distributive Education (3) II

Objectives, duties, qualifications, and problems of supervisors and co-ordinators in organizing and administering distributive education programs.

182. Consumer Income Management (3) I, II

Functions and responsibilities of consumers; problems of choice-making; planning expenditures for housing, household operation, insurance and investments. Economics of installment buying, borrowing procedures, control of frauds, legislation affecting consumers.

183A-183B. Executive Secretarial Procedures (3-3)

Analysis of and practice in the executive secretarial procedures in modern offices; includes review for the *Certified Professional Secretary* examination. Prerequisites: Business Administration 72 and 75B or their equivalents.

184. Office Management (3) I, II

Functions, facilities, techniques, organization and personnel relationship of the business office.

185. Office Systems and Automation (3) I, II

Principles and techniques used in formulating, installing, and operating modern office systems; the functions of business machines, including integrated and electronic data processing equipment, in these systems; applications to modern office situations.

186. Office Machines Methods (2) I, II

Methods and theories of voice-writing, addressing, and duplicating machine operation as applied to office procedures.

188. Records Management (1) I, II

Systems of preparing, keeping, storing and disposing of office records, including the use of equipment and supplies.

189. Objectives and Curricula in Business Education (3) I

Scope, function, and curricula of business education in the secondary schools.

198. Investigation and Report (1-3) I, II

Prerequisites: Senior standing and consent of instructor.

May be repeated to a maximum of six units.

A comprehensive and an original study of a problem connected with business under the direction of one or more members of the business administration staff.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

EXTENSION COURSES

X-123A—123B. C.P.C.U. Preparation (3-3) Extension

Preparation for Chartered Property and Casualty Underwriter examination. Content to be selected by instructor from: Parts I and II—Insurance Principles and Practices; Part III—General Education; Part IV—Law; Part V—Accounting, Finance and Agency Management.

X-126A—126B. C.L.U. Preparation (3-3) Extension

Preparation for Chartered Life Underwriter examination. Content to be selected by instructor from the following: Part I—Life Insurance Fundamentals; Part II—Business, Accident and Sickness, Group Insurance, and Pensions; Part III—Law, Trusts, and Taxes; Part IV—Economics and Finance; and Part V—Life Underwriting. Each part of this offering represents a two-semester course.

X-190. Certificate in Industrial Management (3)

Each of the subject areas listed below may be taken for three units of credit to apply toward the Certificate in Industrial Management or the Certificate in Office Management, in accordance with the requirements for the respective certificates. Credit is applicable only to the certificate programs and may not be used to meet pattern requirements for the B.S. degree.

A. Communications
B. Business Organization and Management
C. Industrial Management
D. Production Planning and Control
E. Statistical Quality Control
F. Methods and Standards
G. Accounting
H. Personnel Management
I. Integrated and Electronic Data Processing
J. Policy Formulation and Analysis

X-191. Certificate in Office Management (3)

Each of the subject areas listed below may be taken for three units of credit to apply toward the Certificate in Office Management. Credit is applicable only to the certificate program and may not be used to meet pattern requirements for the B.S. degree.

A. Information Retrieval Systems
B. Office Administration
C. Automated Office Systems
D. Office Problem Analysis

GRADUATE COURSES

200. Seminar in Accounting Theory (3)

Current trends in accounting in relation to historical development of accounting principles and theory.

203. Advanced Cost Accounting (3)

Prerequisite: Business Administration 102.

Advanced study of the uses of standard costs, budget construction, distribution costs, profit analysis, profit-volume analysis, differential costs; emphasis on examination of current publications.

213. Advanced Auditing (3)

Prerequisite: Business Administration 112.

Critical analysis of the application of auditing principles in verification of financial statements; review of AICPA and SEC bulletins and regulations; advanced professional examination of audit standards, procedures, sampling techniques, and report writing; trends and developments in the auditing profession.

220. Seminar in Business Organization and Management (3)

Prerequisites: Business Administration 132 and consent of instructor.

Analysis of selected topics in business organization and management directed to the development of theories of organization and to an understanding of the operation of enterprises. Emphasis on planning, coordination, leadership and decision-making.

221. Seminar in Employee Relations (3)

Prerequisites: Business Administration 140, Economics 150, and consent of instructor.

Contemporary problems in personnel and industrial relations. Investigations by seminar members of aspects of human factors in management, labor relations and other personnel-related topics. Case problems involving such areas as communication, participation, status, control, and effects of technological change. (Formerly entitled: Seminar in Personnel Management.)

222. Seminar in Finance (3)

Prerequisites: Business Administration 127 or Economics 135 and consent of instructor.

Principles and problems involved in financing business firms from both internal and external sources. Stressing of student research and knowledge of literature in the field of finance.

223. Seminar in Insurance (3)

Prerequisites: Business Administration 120, 124, 125, and consent of instructor.

Advanced study of insurance management including underwriting, investment, and other problems related to effective business operation. Programming of personal, partnership and corporation estates.

224. Seminar in Production Management (3)

Prerequisites: Economics 2 or equivalent, Mathematics 22 or equivalent, and consent of instructor.

A study of quantitative analytical techniques for managerial planning and decision-making. Aspects of operations research that apply to business situations.

250. Seminar in Marketing (3)

Prerequisites: Business Administration 150 and consent of instructor.

Selected phases of marketing, such as pricing policies and practices, channels of distribution, sales promotion activities, distribution cost analysis. Written reports on special aspects of the semester's subject matter are required.

270. Seminar in Business Education (3)

An intensive study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting. May be repeated with new subject matter. Maximum of six units may be applied for the master's degree program.

271. Seminar in Office Management (2)

Prerequisites: Business Administration 1A, 1B, and 184.

An intensive study of the problems of office management and their solution. The relation of records, reports, budgets and manuals to managerial control.

275. Seminar in Real Estate (3)

Prerequisites: Business Administration 170, 173, and consent of instructor.

Current problems in real property and regional economic development.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

CHEMISTRY

IN THE DIVISION OF THE PHYSICAL SCIENCES

(The Department of Chemistry is on the approved list of the American Chemical Society.)

Faculty

Professors: Isensee, Joseph, Robinson, D., Rowe, Spangler, Walba (Chairman), Wick

Associate Professors: Harrington, N., Hellberg, Jensen, Landis, Malik, Stewart, C., Wadsworth

Assistant Professors: Grubbs, Jones, W., O'Neal, Ring, Sharts, Ware, Woodson

Offered by the Department

Master of arts or master of science degree in chemistry. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in chemistry with the A.B. or B.S. degree, available with or without the Certificate of the American Chemical Society. (Described in the section on the General Programs and in the section on the College of Arts and Sciences.)

Minor in chemistry. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

1A-1B. General Chemistry (5-5) I, II

Three lectures and six hours of laboratory.

Prerequisites: Elementary algebra and plane geometry. Strongly recommended: High school chemistry, physics, and additional mathematics.

General principles of chemistry with emphasis on inorganic materials. Qualitative analysis is included in the second semester. Duplicate credit will not be allowed for the corresponding course in Chemistry 10A, 10B, or 1E.

1E. General Chemistry for Engineers (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 1A.

A continuation of the study of the principles of chemistry with emphasis on the relationships to the field of engineering. Open only to engineering majors. Not open to students with credit in Chemistry 1B.

2A. Introductory General Chemistry (3) I, II

Two lectures and three hours of laboratory.

Elementary principles of chemistry. Not open to students with credit in Chemistry 1A.

2B. Elementary Organic Chemistry (3) I, II

Two lectures and three hours of laboratory.

Prerequisite: Chemistry 2A or 1A.

Introduction to the compounds of carbon including both aliphatic and aromatic substances. Not open to students with credit in Chemistry 1B or 1E.

3. Chemistry of Nutrition (3) I, II

Three lectures with demonstrations.

Prerequisites: Chemistry 2A-2B. This course intended primarily for majors in home economics, nursing, and related fields.

Digestion, metabolism and nutrition of foodstuffs and the role of vitamins, hormones and electrolytes in life processes.

4. Elementary Quantitative Analysis (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1B or 2B.

Fundamentals of volumetric and gravimetric analysis. Not applicable to the chemistry major. Not open to students with credit in Chemistry 5 or the course formerly numbered 5A.

5. Analytical Chemistry (4) I, II

Two lectures and six hours of laboratory.

Prerequisites: Chemistry 1B; and credit or concurrent registration in Mathematics 22 or 50.

Theory and practice of volumetric, gravimetric and electrical methods of analysis. Not open to students with credit in Chemistry 4 or the course formerly numbered 5A. Duplicate credit will not be allowed for equivalent work in Chemistry 10A-10B.

10A-10B. Chemical Principles and Techniques (Honors) (5-5)

Three lectures and six hours of laboratory.

Prerequisites: An outstanding record in high school chemistry, physics, and mathematics, accompanied by superior achievement on the College Aptitude Test and the college Mathematics Placement Examinations.

The application of modern electronic theory to the study of general chemistry with emphasis in the laboratory on analytical methods. Qualitative and quantitative analysis is included. Chemistry 10A-10B takes the place of Chemistry 1A-1B and 5 for these students as prerequisites for further courses in chemistry.

12. Organic Chemistry (4) I, II

Three lectures and three hours of laboratory.

Prerequisite: Chemistry 1B.

Stresses aliphatic compounds and includes an introduction to aromatic compounds.

13. Organic Chemistry Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Open only to students enrolled concurrently in Chemistry 12.

Study of the theory and practice of laboratory operations. Synthesis of typical aliphatic compounds.

22. Glass Blowing (1) II

Three hours of laboratory.

Prerequisite: Chemistry 1B.

Elementary training in the manipulation of glass.

UPPER DIVISION COURSES

109A-109B. Fundamentals of Physical Chemistry (3-3)

Prerequisites for 109A: Chemistry 5, Mathematics 22, and Physics 2B and 3B. Not open to students with credit in Chemistry 110A.

Prerequisites for 109B: Chemistry 109A and credit or concurrent registration in Chemistry 150. Not open to students with credit in Chemistry 110B.

Fundamental principles of theoretical chemistry. This course cannot apply to the Plan "A" A.B. or B.S. major in chemistry.

110A-110B. Physical Chemistry (3-3) I, II

Prerequisites for 110A: Chemistry 5 and credit or concurrent registration in Physics 4C and Mathematics 52. Not open to students with credit in Chemistry 109A.

Prerequisites for Chemistry 110B: Chemistry 110A and credit or concurrent registration in 150. Not open to students with credit in Chemistry 109B.

Theoretical principles of chemistry with emphasis on mathematical relations.

111. Physical Chemistry Laboratory (3) I, II
Nine hours of laboratory.
Prerequisite: Credit in Chemistry 109B or 110B or concurrent registration with consent of instructor.
Physico-chemical apparatus and measurements, with emphasis on technical report writing.

112. Organic Chemistry (4) I, II
Three lectures and three hours of laboratory.
Prerequisite: Chemistry 12.
Stresses aromatic compounds, continues with more complex aliphatics and introduces mechanisms of organic reactions.

113. Organic Chemistry Laboratory (1) I, II
Three hours of laboratory.
Prerequisite: Open only to students enrolled concurrently in Chemistry 112.
Study of theory and practice of laboratory operations. Synthesis of typical aromatic compounds.

114A-114B. Clinical Biochemistry (4-4)
(Offered 1963-64 and alternate years)
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 4 or 5 and 12.
Principles of biochemistry and analytical methods applied to blood, urine, and other body fluids. This course cannot apply to the major in chemistry.

115A-115B. Fundamentals of Biochemistry (3-3)
Two lectures and three hours of laboratory.
Prerequisites: Chemistry 4 or 5, and 12.
The chemistry and metabolism of carbohydrates, fats, and proteins. Not open to students with credit in Chemistry 116A-116B.

116A-116B. General Biochemistry (3-3)
Three lectures per week.
Prerequisites: Chemistry 109B or 110B, and 112.
The structure, function, metabolism, and thermodynamic relationships of chemical entities in living systems. Not open to students with credit in Chemistry 115A-115B.

118. Colloid Chemistry (2) II
Prerequisites: Chemistry 12, 110A and 110B.
The theoretical principles of colloid chemistry and related surface effects. Physical methods used in studying colloidal phenomena.

127A. Advanced Inorganic Chemistry (3) I
Prerequisites: Three years of chemistry. Recommended: Credit or concurrent registration in Chemistry 109A or 110A.
The physical basis of the periodic system, complex inorganic compounds, and the nature of the chemical bond.

127B. Advanced Inorganic Chemistry (3) II
Two lectures and three hours of laboratory.
Prerequisite: Chemistry 127A.
An advanced systematic study of representative and transition elements and their compounds. Laboratory work in synthetic inorganic chemistry.

130. Chemistry for Elementary Teachers (3) Summer
Lectures, demonstrations, and field trips. No prerequisites.
Practical chemistry designed to develop an understanding of basic concepts, methods and materials of chemistry used in the elementary school. Not open to students with previous credit in chemistry.

131. Theoretical Organic Chemistry (3) II
Prerequisites: Chemistry 109A or 110A and 112.
The application of modern electronic theory to the physical and chemical properties of organic compounds.

140. Introduction to Nuclear Chemistry (4) I
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 1B.
The analytical and physical chemistry of the measurement and processing of radioactive materials. Not applicable to the major in chemistry.

141. Reactor Chemistry (4) II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 140.
Chemistry of the lanthanide and actinide series and of important light elements. Fuel processing problems, selected industrial chemical methods. Separation processes. Laboratory work in the processing of fuel and fission product materials. Not applicable to the major in chemistry.

150. Analytical Chemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 12 and 109A or 110A.
Advanced theory and practice of quantitative analysis and an introduction to instrumental methods of analysis.

154. Organic Qualitative Analysis (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and credit or concurrent registration in Chemistry 109A or 110A.
A systematic study of the identification of organic compounds and mixtures.

155. Advanced Instrumental Methods (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Chemistry 150 and credit or concurrent registration in Chemistry 110B.
Advanced theory and practice of chemical instrumentation.

156. Quantitative Microanalysis (3) II
One lecture and six hours of laboratory.
Prerequisites: Chemistry 112 and 150.
Techniques of microanalysis including carbon, hydrogen, nitrogen, halogen, sulfur, oxygen and metal analyses.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Engineering 160A-160B)
Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Radiochemistry (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Chemistry 109A or 110A.
Principles and techniques of radioactivity as applied to chemistry. Measurements related to radionuclides, and tracer applications.

191. Chemical Literature (1) II
Prerequisite: Upper division standing in chemistry.
An introduction to the availability, scope and use of the chemical literature.

196. Selected Topics in Chemistry (1-3) I, II
Prerequisite: Consent of instructor.
A study of selected topics in modern chemistry. May be repeated for additional credit with new subject matter for a total of six units.

198. Senior Project (1-6) I, II
Prerequisites: Three one-year courses in chemistry and senior standing.
An individual investigation and report on a problem. May be repeated to a maximum of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor. Open only to students who have shown ability to do A or B work in chemistry.

GRADUATE COURSES

200. Seminar (1 to 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced chemistry. May be repeated with new subject matter for additional credit.

220. Chemical Thermodynamics (3)
Prerequisites: Mathematics 52 and Chemistry 110B.
An introduction to the study of chemical thermodynamics.

221. Quantum Chemistry (3)
Prerequisite: Chemistry 220.
Selected topics in thermodynamics and quantum chemistry, including an introduction to the statistical approach to quantum mechanics.

222. Chemical Kinetics (2)
Prerequisites: Mathematics 52 and Chemistry 110B.
Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

223. Physical Chemistry of Electrolytic Solutions (2)
Prerequisite: Chemistry 220.
Theory of ionic solutions; electrode potentials, determination of activity coefficients, partial molal quantities and their applications.

230. Advanced Organic Chemistry (2)
Prerequisite: Chemistry 112.
Applications and limitations of organic reactions from the viewpoint of synthesis.

231. Mechanisms in Organic Reactions (2)
Prerequisites: Chemistry 110B and 131.
Reactivity and mechanism in organic reactions.

240. Chemistry of the Less Familiar Elements (2)
Prerequisite: Chemistry 127A.
Modern inorganic theory applied to electronic configurations, periodic relationships and uses of selected less familiar elements.

250. Advanced Analytical Chemistry (2)
Prerequisites: Chemistry 110B and 150.
Selected topics and theories in advanced analytical chemistry.

260. Advanced Biochemistry (2)
Prerequisites: Chemistry 110B and 115B.
Discussion of selected topics emphasized in current research in carbohydrates, fats, and protein metabolism such as mechanisms of biological reactions, growth factors, and hormonal control.

261. Advanced Biochemical Techniques (2)
Six hours of laboratory.
Prerequisite: Chemistry 116A.
The laboratory application of biochemical techniques in manometry, chromatography, electrophoresis, and enzymology.

270. Nuclear Chemistry (2)
Prerequisite: Chemistry 170.

Chemistry of the actinides. Nuclear reactions, induced radioactivity. Interaction of radiation with matter, fission systematics, interpretations arising from nuclear models.

290. Bibliography (1)
Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Research Seminar (1)
Prerequisite: Consent of department chairman.

Discussions on current chemical research by students, faculty, and visiting scientists. Each student will make a presentation based on the current literature.

297. Research (Credit to be arranged)
Prerequisite: Consent of instructor.

Research in one of the fields of chemistry. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

COMPARATIVE LITERATURE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in comparative literature are drawn from departments in the Division of the Humanities.

All reading assigned for classes in comparative literature is in English translations, and no knowledge of any foreign language is required.

Major work is not offered in comparative literature; however, courses in this field may be used as part of the English major. For specific information, refer to English.

A minor is offered in comparative literature.

LOWER DIVISION COURSES

52A-52B. Masterpieces of World Literature (3-3) I, II
(Same course as English 52A-52B)

A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay.

70A-70B. Introduction to Oriental Literature (3-3)
Major writings in translation, with emphasis each semester on the literature of one oriental country.

UPPER DIVISION COURSES

101A-101B. Modern Continental Fiction (3-3)
(Same course as English 101A-101B)

Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

104A-104B. Spanish American Literature (3-3)
(Same course as Spanish 104A-104B)
For a description of this course, see Spanish 104A-104B, which may be taken for credit in Comparative Literature by doing the required reading in English translation.

115. The Bible as Literature (3) I
(Same course as English 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

138. Introduction to Aesthetic Appreciation (1) I
(Same course as Humanities 138)
Major forms of expression and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

140A-140B. Masterpieces of French Literature (3)
A cultural course designed to be given in introduction to the great French works from the Song of Roland through Cyrano de Bergerac, with emphasis on the sixteenth, seventeenth, eighteenth and nineteenth century authors. The contributions to world thinking of Rabelais, Montaigne, Moliere, Racine, Descartes, Pascal, Montesquieu, Voltaire, Rousseau, Hugo, Balzac, Flaubert, Maupassant, Zola, will be studied through lectures and outside readings.

142. The Golden Age of German Literature (3) I, II
(Same course as German 142)
Masterpieces of German literature from the eighteenth and early nineteenth centuries.

152A-152B. World Drama (3-3)
(Same course as English 152A-152B)
Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

170. Studies in Modern Oriental Literature (3)
Types of recent literature in translation, with emphasis on the writing of one oriental country. May be repeated once for additional credit with new material.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

ECONOMICS

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Anderson, G., McClintic, Ryan

Associate Professors: Babilot, Barckley, Flagg, Gifford (Chairman), Neuner, Turner, M.S.

Assistant Professors: Balabanis, Chadwick, Leasure, Yamamura

Lecturers: Anderson, J., Behrens, Harbury

Offered by the Department

Master of arts degree with a major in economics; and master of arts degree for teaching service with a concentration in social science (economics). (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Economics

Major in economics with the A.B. degree in liberal arts and sciences. (Described in the section of the College of Arts and Sciences.)

Minor in economics. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

NOTE: Economics 1A and 1B or 103A and 103B are prerequisite to all upper division courses.

1A. Principles of Economics (3) I, II

An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon macro-analysis including national income analysis. money and banking, business cycles, and economic stabilization. Not open to students with credit in Economics 103A.

1B. Principles of Economics (3) I, II

Prerequisite: Economics 1A.

An introduction to principles of economic analysis, economic institutions, and issues of public policy. In this semester the emphasis is upon the direction of production, the allocation of resources, and the distribution of income, through the price system (micro-analysis); and international economics. Not open to students with credit in Economics 103B.

2. Statistical Methods (3) I, II

Prerequisites: Mathematics 21 or higher numbered course, or Mathematics 3 at this college with a grade of C or better, or qualification by examination on subject matter of Mathematics 3 .(on Mathematics Placement Examinations—see calendar).

Introduction to descriptive statistics, statistical inference, correlation, index numbers, and time series. Not open to students with credit for another course in statistics.

UPPER DIVISION COURSES

100A. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to the theory of the firm and the industry; value and distribution.

100B. Intermediate Economic Theory (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic theory with special reference to national income analysis and the theory of investment.

101. History of Economic Thought (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

A study of the development of economics. Contributions of schools of thought and individual writers are examined with regard to their influence on economic theory and policy.

102. Comparative Economic Systems (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The economic aspects of laissez-faire and regulated capitalism, co-operatives, socialism, communism, nazism, fascism. Experience in Russia, Germany, United States, Great Britain. Criteria for evaluating economic systems. The individual and government in each system. Planning in a liberal capitalistic society.

103A. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Six units in political science, history, or sociology.

Income and employment theory and its applications. Not open to students with credit in Economics 1A. May not be used to fulfill minimal upper division requirements in the economics major or minor, social science major or minor, or general major.

103B. Economic Principles, Institutions, and Policies (3) I, II

Prerequisite: Economics 103A.

Price theory and its applications. Not open to students with credit in Economics 1B. May not be used to fulfill minimal upper division requirements in the economics major or minor. social science major or minor, or general major.

107. Quantitative Economics (3) I

Prerequisites: Economics 1A and 1B, or 103A and 103B, and Economics 2, or equivalents. (Formerly entitled: Econometrics.)

The quantitative approach to economic problems. Emphasis on the use of mathematics in economic analysis.

110. Economic History of Europe (3) I

Prerequisites: Economics 1A and 1B, or 103A and 103B, or consent of instructor.

A general survey of economic development from the Middle Ages to the present. Particular attention is given to the impact of the Industrial Revolution on national economies, especially on England's commerce and industry.

111. Economic History of the United States (3) II

Prerequisites: Economics 1A and 1B, or 103A and 103B, or consent of instructor.

A comprehensive survey of American economic development and of national legislation in the field of industry and commerce.

114. Economic Problems of Latin America (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of Latin America.

115. Economic Problems of South and East Asia (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of China, India and Pakistan, Japan, and Southeast Asia.

118. The Economy of the Soviet Union (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The development, institutions, and problems of the Soviet economy.

119. Economic Problems of Africa and the Middle East (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic development, institutions, and problems of Africa and the Middle East.

127. Agricultural Economics (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The issues of economic planning and control of agriculture. The nature of such problems as surplus production, low income and population change. Evaluation of price controls, crop restrictions and other programs and proposals.

131. Public Finance (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Principles and practices of taxation and public expenditures. Economic effects of public spending, debts and taxation. Financing social security and other services. Fiscal policy and prosperity. Relation to inflation and deflation. Special emphasis on social problems involved.

133. Fundamentals of Finance (3) I, II

(Same course as Business Administration 127)

Prerequisites: Economics 1A and 1B, or 103A and 103B, and Business Administration 1A and 1B.

Financing business enterprises. Capital and its role in production. The supply of and demand for capital. Financial intermediaries. Government regulation of finance. The cost of capital.

135. Money and Banking (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

The elements of monetary theory. History and principles of banking with special reference to the banking system of the United States.

138. Urban Land Economics (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Analysis of major influences affecting city location and growth; role of private and governmental institutions in influencing residential and other uses of land; major considerations in appraising, managing, financing, marketing, developing and taxation of urban property. Discussion of San Diego problems.

142. Business Cycles (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Fundamental factors in business cycles are analyzed and cycle theories are examined. Study of current business conditions; application of forecasting methods to economic data.

150. Labor Problems (3) I, II

Prerequisites: Economics 1A and 1B or 103A and 103B.

A study of labor organizations and their policies, wages, strikes, unemployment, social insurance, child labor, labor legislation, plans for industrial peace, and other labor problems.

151. Labor Legislation (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Labor-management relations; fair labor standards; arbitration and conciliation of industrial disputes. Federal, state and local laws dealing with these subjects.

152. Collective Bargaining (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Structures of labor relations; management and union problems; public policy and collective bargaining; conditions of successful collective bargaining.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

170. Government and Business (3) I, II

Prerequisites: Economics 1A and 1B, or 103A and 103B, or consent of instructor.

General survey of governmental activities affecting business; the state as an entrepreneur and manager; governmental assistance to business; governmental regulation of business in its historical, legal and economic aspects, including recent developments in the United States and abroad; proposed policies.

171. Transportation Economics (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economic impact of the availability and cost of transportation services. Organization, rate-making practices, financing and regulation of transportation agencies: air, surface, and water. Current issues of national transportation policy.

172. Public Utilities (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Economics and regulation of utility enterprises. Growth, pricing, demand and cost behavior, financing, regulatory principles and techniques. Public power and other current policy issues.

173. Economic Resources and Growth (3) II

Prerequisites: Economics 1A and 1B or 103A and 103B.

Resource requirements for continued growth in the American economy: Human resources; capital formation; energy, water and material resources. Effects of population increase. Factors determining resource growth and productivity. Impact of technological change. Current resource development policies.

174. Economic Concentration and Monopoly Power (3) I

Prerequisites: Economics 1A and 1B or 103A and 103B.

The implications of economic concentration and monopoly. The evaluation of mergers, consolidations and other forms of monopoly power in terms of social and economic goals. Attempts to control monopoly power by antitrust laws, by policies regarding competitive practices and by other means.

185. Social Insurance (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
Old age pensions, health insurance, unemployment insurance, and Social Security Act. Strength and weakness of existing systems.

190. International Economics—Principles (3) I
Prerequisites: Economics 1A and 1B or 103A and 103B.
National welfare and foreign trade. Foreign exchange and the balance of payments, financing foreign trade. Regulations over trade and obstructing factors. Doctrines of international trade.

195. International Economics—Problems (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
International economic conflict and cooperation, international economic communities (common markets), international economic conferences and organizations.

196. Economics of Underdeveloped Areas (3) II
Prerequisites: Economics 1A and 1B or 103A and 103B.
The nature and causes of economic underdevelopment. An analysis of problems of and policies for the economic development of underdeveloped areas of the world.

197. Research Design and Method (3)
Prerequisites: Economics 2, 100A and 100B.
Instruction in the practical application of the various techniques of economic research to a range of problems typically encountered in the economics profession; sources and limitations of basic data, survey research, industry studies, economic forecasting, national impact studies, area and regional studies.

198. Investigation and Report (3) I, II
Open to economics majors only.
Designed to stimulate independent study and investigation; to furnish guidance in the collection, organization, and presentation of factual material; to improve the technique of term reports.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200A-200B. Seminar in the Development of Economic Thought (3-3)
Prerequisites: Twelve units in economics.
A critical study of the development of economic thought.

203A-203B. Seminar in Advanced Economic Theory (3-3)
Prerequisites: Economics 100A and 100B.
Individual research, seminar reports, group discussion of problems in economics theory.

210. Seminar in Economic History (3)
Prerequisite: Economics 110 or 111 or consent of both the instructor and the Departmental Academic Requirements Committee.
Individual study and group discussion on selected topics in economic history.

231. Seminar in Public Finance (3)
Prerequisite: Economics 131.
Advanced study of public finance problems and literature; research.

235. Seminar in Money and Banking (3)
Prerequisite: Economics 135.
Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system.

241. Econometrics (3)
Prerequisite: Economics 107.
Measurement in economics. The construction and testing of econometric models. Emphasis on the adaptation of statistical analysis to economics. Estimating demand, supply, and the marginal propensity to consume; forecasting national income.
(Formerly offered as Economics 207.)

250. Seminar in Labor Economics (3)
Prerequisites: Economics 150 or 151 or 152.
Individual study and group discussion of selected topics in labor economics.

272. Seminar in Utilities and Water Resources (3)
Prerequisite: Economics 172.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.

295. Seminar in International Economics (3)
Prerequisites: Economics 190 or 195 or 196.
Individual and group research into selected topics; group discussion of procedures and results.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a thesis for the master's degree.

EDUCATION

IN THE DIVISION OF EDUCATION

(Member of the American Association of Colleges for Teacher Education)

Faculty

Emeritus Faculty: Corbett, Hammack, E., Hammack, I.

Professors: Alcorn, Anderson, P., Apple, Ballantine, Brydegaard, Friedrich, Fulkerson, Gjerde, Gray, Grisier, Houseman, Hunter, Kinder, Koester (Administrative Chairman), Linley, Malcolm, Nardelli, Prouty, Schrupp (Dean), Schunert, Stone, Stough, Trimmer, White, A.

Associate Professors: Anderson, E., Bacon, Baker, D., Briggs, Bruce, Campbell, Crum, Falk, Fishburn, Fisher, Gates, Gega, Groff, Hill, Klemer, Lienert, Person, Petteys, Platz, Rodney, Schmidt, Smith, H., Strand, Wetherill

Assistant Professors: Adams, P., Birch, Brendt, Charles, Clements, Creech, Du Bois, Epler, Halfaker, Holt, Huls, Ikeda, Inskeep, Johnson, D., La Pray, Livingston, McVay, Plazak, Rixman, Ross, Rowland, Servey, Singer, Strom, Tossas, Walsh, Wilding

Offered by the Division

Master of arts degree in education with concentrations in nine areas. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

For a description of the following programs, refer to the section in this catalog on Professional Curricula in Education:

Major in elementary education with the A.B. degree and general elementary and/or kindergarten-primary credential.

Major in elementary education with the B.E. degree and general elementary credential.

Major in vocational arts with the B.V.E. degree.

Teaching credentials in all areas.

LOWER DIVISION COURSES

A. Review of Arithmetic (0) I, II

H. Review of Handwriting (0) I, II

R. Review of Reading (0) I, II

S. Review of Spelling (0) I, II

Noncredit courses designed to increase competence in the skill subjects. For students who do not qualify on the respective sections of the Fundamentals Test required of all applicants to elementary teacher education.

UPPER DIVISION COURSES

Social Foundation

100. The Secondary School (4) I, II

Three lectures and three hours of laboratory and/or field work, including audio-visual experiences.

Orientation toward understanding teaching as a profession, and the public school as a social institution. Overview of philosophy, history, aims, scope, function, outcomes, principles, and problems of American elementary and secondary education. Not open to students with credit in Education 101 or 102.

101. History and Philosophy of Education (2) I, II, Summer

Prerequisites: Senior standing and a minimum of 12 units in education.

Historical backgrounds and underlying philosophies upon which the public school system has been established. Emphasis on the meaning of education, educational aims and values, and democracy and education. Not open to students with credit in Education 100.

102. Secondary Education (3) Irregular

An introduction to understanding the development of secondary education and its present status as a social institution. Not open to students with credit in Education 100.

Psychological Foundations

110. Development and Learning (4) I, II

Three lectures and three hours of laboratory and/or field work.

Prerequisite: Education 100.

To acquaint the student in secondary education with the nature of development and the learning process, with consideration of mental hygiene, guidance and the place of audio-visual aids. Not open to students with credit in Education 111 or 113.

111. Educational Psychology (2) I, II, Summer

(Same course as Psychology 130)

Prerequisite: Psychology 1.

To develop understanding of the applications of psychological research for effective classroom teaching. Observation and field work required. Not open to students with credit in Education 110 or Psychology 130.

112. Child Growth and Development (3) I, II, Summer

Should precede Education 151 for elementary credential candidates.

Study of the mental, emotional, social, and physical development during childhood and early adolescence. Directed observation required.

113. Growth and Development of the Adolescent (3) Irregular

Study of adolescent physiological, psychological, social. and emotional development, including principles of mental hygiene and guidance. Field work with adolescent groups in the community is required. Not open to students with credit in Education 110.

114. Interpretation of Early Childhood Behavior (3) Irregular in Summer

For kindergarten-primary teachers treating the analysis and interpretation of early childhood behavior. Emphasis on understanding and interpreting the causative factors in typical behavior of children to parents, social workers, teachers, and others concerned with the guidance of kindergarten-primary children.

115. Guidance in Elementary Education (3) I, II, Irregular

A study of the basic principles of guidance and their function in the educational process as applied in the elementary school.

118. Supervision of Child Welfare and Attendance (3) Irregular

Content includes laws relating to children, guidance principles, social casework, agency relationships, conference techniques, home visitation methods, employment supervision, attendance work, child accounting, familiarity with testing techniques.

Methods—Secondary

120. The Teaching Process (4) I, II

Three lectures and three hours of laboratory and/or field work.

Prerequisites: Education 110 and concurrent registration in Education 180 or 316.

To develop teacher competency at the secondary level in professional and community relationships, and in planning teaching, and evaluating learning activities (with emphasis on the use of audio-visual resources and the development of class morale). Not open to students with credit in Education 152.

121. Methods and Materials of Instruction and Audiovisual Aids
Major (2), Minor (2)

Lecture courses, except that Education 121K, 121N, and 121V meet for one lecture and three hours of laboratory.

Professional courses in specific teaching fields taken concurrently with the first directed teaching assignment. Each course emphasizes the application of best practice with reference to each subject area named.

Subject fields for sections in 121 are as follows:

Offered in the Fall Semester

121A. Methods in Art
121B. Methods in English
121C. Methods in Homemaking Education
121E. Methods in Foreign Languages
121G. Methods in Music
121H. Methods in Phys. Ed. (Men)
121J. Methods in Phys. Ed. (Women)
121K. Methods in Physical Science
121L. Methods in Speech Arts
121M. Methods in Social Science
121V. Methods in General Science

Offered in the Spring Semester

121B. Methods in English
121D. Methods in Industrial Arts
121F. Methods in Mathematics
121N. Methods in Life Science
121J. Methods in Phys. Ed. (Women)
121M. Methods in Social Science

Offered Irregularly

121P. Methods in Health Education
121Q. Methods in Accounting
121R. Methods in Merchandising
121S. Methods in Shorthand
121T. Methods in Secretarial Subjects
121U. Methods in Typing
121V. Methods in General Science

122. Reading in Secondary Education (3) Irregular
The nature of the reading program, development of techniques and skills, vocabulary development, reading in the content fields, the differentiated attack, measurement, diagnosis, and remediation.

123. Driver Education (2) Summer
Prerequisite: Consent of instructor.
A workshop type course designed to prepare teachers of the course in high school.

124. Advanced Driver Education (2) Summer
Prerequisite: Education 123.
An advanced workshop dealing with special problems in driver education, including legal and sociological aspects, administration, and special training techniques.

125. Organization and Administration of Music Education (2) II
Administration of an instrumental music program: purchase, care, depreciation of instruments and equipment; developing interest, ethics, schedule-making; operation and maintenance of music library; personnel and equipment records; the achievement point system; the marching band show; rehearsal procedure.

126. Workshop in Secondary Education (3 or 6) Summer
Designed to meet the needs of individuals or groups of teachers who wish to develop or continue the study of some problem with the consultation of the college staff and the San Diego County Curriculum Staff.

Methods—Elementary

130. First Elementary Education Practicum (13)
Prerequisite: Admission to elementary education.
Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through G below.

- **130A. Arithmetic in Elementary Education (2-3) I, II, Summer**
- **130B. Art in Elementary Education (2-3) I, II, Summer**
- **130C. Language Arts in Elementary Education (2-3) I, II, Summer**
- **130D. Music in Elementary Education (2-3) I, II, Summer**
- **130E. Reading in Elementary Education (2-3) I, II, Summer**
- **130F. Observation and Participation (2) I, II**
- **130G. Curriculum (1) I, II**

131. Second Elementary Education Practicum (7)
Prerequisite: Education 130.
Curriculum, principles, methods and materials of instruction (including audio-visual), and participation in elementary education, in the areas listed in A through D below.

- **131A. Social Studies in Elementary Education (2-3) I, II, Summer**
- **131B. Science in Elementary Education (2-3) I, II, Summer**
- **131C. Directed Teaching (2) I, II**
- **131D. Curriculum (1) I, II**

132. Kindergarten-Primary Practicum (4) I, II, Summer
Prerequisites: Education 130 and 131.
A continuation of Education 131 and will accompany Education 181 in the kindergarten. A study of the theory of early childhood education providing experience with children of nursery school and kindergarten ages.

133. Children's Literature in Elementary Education (3) Irregular
Criteria for the selection of children's literature, children's reading interests, the development of units of instruction in the social studies, the use of the verse, choir, dramatic readings and similar procedures, and the use of the library.

134. Laboratory in Elementary Education (3) Summer

A general course in observation and theory, including a study of arithmetic, reading, language, music, science, social studies, art, spelling. Students in this course will observe in the summer demonstration school and discuss with the staff the teaching procedures.

135. Workshop in Elementary Education (3 or 6) Irregular

To meet the needs of individual or groups of teachers who desire to study selected problems in elementary education. The observation of classroom teaching will be provided for members in attendance. Interested persons should correspond with the Coordinator of Elementary Education, San Diego State College.

136. Music Literature for Elementary Teaching (3) Summer

Prerequisites: Music 7A and teaching experience, or consent of instructor.

Music literature for singing, expressive movement, listening, playing instruments, and creative activities, stressing integration of these activities with the total classroom program.

137. Reading Difficulties (3) I, Summer

Prerequsites: Education 112 and 130E or 122, or consent of instructor.

Reading difficulties, their causes, prevention, and correction. Remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.

138. Curriculum in Elementary Education (3) Irregular

Emphasis upon the selection and development of content, teaching methods, and materials as they relate to social needs; evaluation procedures; psychological principles, and the nature of the learner.

Audiovisual

140. Audiovisual Instruction (3) I, II, Summer

Three lectures and two hours of laboratory.

Audiovisual materials and techniques as they affect learning; operation of equipment.

141. Creating Audiovisual Materials for Classroom Use (3) Irregular

Prerequisite: Education 140.

Practice in the creation and evaluation of instructional materials, such as 35 mm. filmstrips, 16 mm. films, scripts, recordings and other audiovisual materials.

143-S. Workshop in Educational Television (6) Summer

(Same course as Speech Arts 143-S)

Open to teachers and students interested in instruction by television.

The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

Measurement

150. Psychological Testing (3) I, II

(Same course as Psychology 105)

Prerequisite: One of the following courses: Psychology 104A, Education 120, 151, or 152, or a semester of statistical methods in any other department.

The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

151. Measurement and Evaluation in Elementary Education (3) I, II, Summer

Should follow Education 112 for elementary credential candidates.

The use of intelligence and achievement tests in the diagnosis and improvement of learning; construction of objective examinations; problems of evaluation in education; the elements of statistical techniques.

152. Measurement and Evaluation in Secondary Education (2) Irregular

Prerequisite: Education 111.

Problems of evaluation in secondary education, construction of examinations, the elements of statistics, the selection and interpretation of standardized measures. Not open to students with credit in Education 120.

Honors Course

166. Honors Course (Credits to be arranged) I, II

Refer to the Honors Program.

Exceptional Children

170. Exceptional Children (3) I, II Summer

Characteristics and adjustment problems of mental, physical, and emotional deviates.

171. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) II or Summer

Selection, organization and presentation of curricular materials for mentally retarded children in the elementary grades.

172. Workshop for Teaching the Mentally Retarded (3-6) Summer

Curriculum and methods of teaching, integrated with a demonstration class. Particular emphasis on the arts and crafts program. Opportunities will be provided for teachers to develop materials of instruction. To meet California credential requirements in the areas described. Students with credit for Education 171 are limited to enrollment in 3 units.

173. Vision Testing and Hygiene (2) Irregular

Measurement of visual acuity including an analysis of vision tests, hygiene and physiology of the eye, conservation of sight, and classroom adaptation for the visually handicapped.

174. Principles and Methods of Speech Correction (3) II

(Same course as Speech Arts 174)

Prerequisites: Speech Arts 150 and 170, or consent of instructor.

Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

175. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) II or Summer

Selection, organization and presentation of curricular materials for mentally retarded children in the secondary grades.

176. Stuttering and Neurological Disorders (3) I

(Same course as Speech Arts 176)

Prerequisites: Speech Arts 100 and 170.

Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiometry (3) I

(Same course as Speech Arts 171)

Prerequisite: Consent of instructor.

Anatomy, physiology, and psycho-physics of the human ear, theories of hearing, medical aspects, pathology, audiometric techniques with practice, including tuning fork assessment, pure tone screening techniques, discreet frequency, pure tone threshold testing, play audiometry, and speech audiometric procedures. Meets audiometric certification requirement.

178. The Teaching of Lipreading (3) II

(Same course as Speech Arts 178)

Prerequisite: Education 177 or Speech Arts 171; or consent of instructor.

History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

Student Teaching

180. Directed Teaching—Secondary (2-12) I, II

Prerequisites: Admission to teacher education and education program approved by the Coordinator of Secondary Education. Any grade below a C is unacceptable for a credential.

Systematic observation, participation and teaching under supervision in a junior or senior high school. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

181. Directed Teaching—Elementary (2-12) I, II
Prerequisites: Admission to teacher education and education program approved by the Coordinator of Elementary Education. Any grade below C is unacceptable for a credential.

Systematic observation, participation and teaching under supervision in the Campus Elementary School or affiliated elementary schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

182. Directed Teaching—Mentally Retarded (4) I, II
Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

183. Directed Teaching—Library Practice (2-4) I, II
Prerequisites: Admission to teacher education and concurrent completion of a teaching minor in library science.

Systematic observation and participation in library and audiovisual service under supervision in a school library and/or teaching materials center. During each semester of student library work a weekly conference period is required as indicated in the time schedule.

184. Directed Teaching—Speech Correction (4) I, II
Application to take the course should be made during the preceding semester.

Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

Conference and Special Courses

190. Conference on the Teaching of Mathematics (1) Summer
May be taken three times for credit.

Lectures, discussions, and demonstrations on problems in teaching of mathematics in the elementary and secondary schools. Designed for teachers, supervisors, and administrators interested in current developments in this area.

191. Guidance Conference (1) Summer
Prerequisite: Consent of director of the conference. Course may be taken three times for credit.

A series of lecture and discussion sessions centering on current problems in counseling and guidance. Designed to serve the needs of any person desiring to keep informed of developments in this area.

192. Audiovisual Conference (1) Summer
May be taken three times for credit. Course does not fulfill credential requirement.

A series of lectures, discussions and demonstrations, centering on problems in the use of audiovisual instructional materials. Designed for teachers, administrators, audiovisual representatives, and others interested in current developments in this area.

199. Special Study (1-6) I, II, and Summer
Individual study. Six units maximum credit.

Prerequisite: Consent of instructor. Open only to senior and graduate students in education who have shown ability to work independently.

EXTENSION COURSES

X-116A—116B—116C. Child Study Laboratory (3-3-3) I, II
Development of background and procedures for child study and their application to field situations. Field work required. For teachers in service. Education X-116A is prerequisite to X-116B, and X-116B is prerequisite to X-116C.

X-127. Problems in Education (Credit to be arranged) Extension
Prerequisite: Consent of instructor.
Class study of specially selected problems in education. Does not apply to pattern requirements for credentials. Offered only in extension.

GRADUATE COURSES

Prerequisites for All Graduate Courses

For requirements for admission to graduate courses, refer to the section of this catalog on the Graduate Division. In addition to these general requirements, 12 units of professional education courses are prerequisite for enrollment in all graduate courses in education except Education 201, 223 and 251, which require special clearance from the Coordinator of Junior College Programs.

Sociological Foundations

201. The Junior College (2) I
Fieldwork, including observation and audiovisual experiences required.
Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the junior college. Relation of the junior college to elementary and secondary schools and to four-year colleges.

204. Comparative Education (3) I, Summer
The contemporary educational ideas and practices of various countries of the world and their impact upon our culture and education.

205. History of Education (3) Irregular
Prerequisite: Education 100 or 101.
Advanced study of the history of education with emphasis on educational practices as related to present day problems.

206. Philosophy of Education (3) Irregular
Prerequisite: Education 100 or 101.
Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems.

207. Educational Sociology (3) Irregular
Prerequisite: Education 100 or 101.
A study of the social, economic, political and moral setting in which present day American education functions.

208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6) Summer
Prerequisite: Teaching experience.
Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants.

Educational Psychology

220. Advanced Educational Psychology (3) I, II, Summer
Prerequisite: Education 110 or 111.
Advanced study of research and its application to learning and human growth.

221. Seminar in Educational Measurement (3) Summer
Prerequisite: One of the following: Education 150, 151, or 152.
Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests.

222. The Gifted Child (3) I, Summer
Prerequisites: Education 110 or 111, and 112.
The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

223. Educational Psychology: Junior College (2) I
Fieldwork required.
Prerequisite: Credit or concurrent registration in Education 201.
The nature of the junior college student; the learning process including contributions of audiovisual materials. The functions of student personnel services in the junior college.

230. Guidance Problems in Secondary Education (3) I, II, Summer

Prerequisite: Education 110 or equivalent, and student teaching or teaching experience.

The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

231. Techniques of Pupil Appraisal (3) I, II or Summer

Prerequisites: Psychology 104A and either Education 151 or 152.

Techniques of collecting, assembling, and interpreting data about individual pupils for guidance purposes. Fieldwork required.

232. Problems in Vocational Guidance (3) I, Summer

Prerequisites: Education 230 and 231.

To prepare counselors for vocational guidance in secondary schools. Emphasizes group and individual procedures for assisting pupils to understand and integrate vocational and self information.

233. Guidance Counseling Techniques (3) I, II

(Same course as Psychology 233)

Prerequisite: Education 115 or 230, or Psychology 151.

Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing.

234. Administration of Pupil Personnel Services (3) I, Summer

Prerequisite: Education 230.

The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare.

237. Research in Guidance Problems (1-3) Summer

Admission by permission of the Coordinator of Secondary Education and instructor.

Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

238. Fieldwork in School Guidance (3) II

Prerequisites: Consent of instructor and 12 units in guidance and related areas.

Application of the principles and procedures in testing, counseling, and related personnel work in the public school. Weekly seminar sessions with college and cooperating staff.

239. Workshop in Pupil Personnel Services (3) Summer

Prerequisites: Teaching experience and consent of director of the workshop.

Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized.

Elementary Education

240. Curriculum Construction and evaluation in Elementary Education (3) I, II, Summer

Prerequisite: Credit or concurrent registration in Education 290A-290B.

Advanced study of the research in curriculum development, construction, and evaluation.

241. Seminar in Arithmetic in Elementary Education (3)

Prerequisite: Credit or concurrent registration in Education 290A-290B.

A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.

242. Seminar in Reading in Elementary Education (3)

Prerequisite: Credit or concurrent registration in Education 290A-290B.

Advanced study of trends in reading instruction. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems.

243. Seminar in Social Studies in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 290A-290B.
Advanced study of problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field.

244. Seminar in Language Arts in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 290A-290B.
Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field.

245. Seminar in Elementary Education (3) Irregular
Prerequisite: Credit or concurrent registration in Education 290A-290B.
A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects.

246. Advanced Diagnosis in Reading (3) II, Summer
Prerequisites: Psychology 204 and Education 137, or consent of instructor.
Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments of diagnosis.

247. Advanced Diagnosis and Treatment of Learning Difficulties (3) II, Summer
Prerequisites: A teaching credential and Education 151 or 152.
Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.

248. Seminar in Science in Elementary Education (3)
Prerequisite: Credit or concurrent registration in Education 290A-290B.
Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.

Secondary Education

250. Curricular Problems in Secondary Education (3) I, II, Summer
Prerequisite: Student teaching or teaching experience.
Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.

251. Instructional Methods and Materials: Junior College (2) II
Prerequisites: Education 223 and concurrent registration in Education 316.
The teaching process at the junior college level, including lesson planning utilization of audiovisual and other instructional materials and procedures of evaluation.

252. General Education in the Secondary School (3) Summer
Prerequisites: 12 units in secondary education and consent of instructor.
A course designed for teachers in service. A study of the function and implementation of general education in the secondary school.

254. Advanced Problems in Secondary School Instruction (3) II, Summer
Prerequisites: Teaching experience and consent of instructor.
An analysis of the scientific research and philosophical principles in secondary school instruction.

256. Recent Trends in Secondary Curriculum (3) Irregular
Prerequisites: 12 units in secondary education and consent of instructor.
Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

257. Workshop in Intercultural Education (4) Summer
Enrollment only by application to the Dean of Education.
A cooperative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricula and instructional materials and techniques.

258. Research in Curricular Problems (1-3) Irregular

Admission by consent of the Coordinator of Secondary Education and the instructor.

Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

School Administration and Supervision

260. Federal, State, County and City School Organization and Administration (3) I, II, Summer

Prerequisite: Possession of a valid teaching credential.

A study of federal, state, county and city school organization and administration including the interrelationships of the four levels.

262. The Organization and Administration of Elementary Schools (3) I, Summer

Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.

A study of the problems of personnel, local finance, curriculum, school plant and community relations of elementary schools. Field project required.

263. The Organization and Administration of Secondary Schools (3) I, Summer

Prerequisites: Possession of a valid general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.

A study of the problems of personnel, local finance, curriculum, school plant, transportation and community relations of secondary schools. Field project required.

264. Elementary School Supervision (3) II, Summer

Prerequisites: Possession of a general elementary credential, teaching experience, Education 115, 240, 260, 270 and admission to the program of Administrative Studies.

Principles and practices of supervision and methods of evaluating instruction and the curriculum in elementary education. Field project required.

265. Secondary School Supervision (3) II, Summer

Prerequisites: Possession of a general secondary credential, teaching experience, Education 230, 250, 260, 270 and admission to the program of Administrative Studies.

Principles and practices of supervision, curriculum and teaching methods in secondary education. Field project required.

266. Fieldwork in Elementary School Administration and Supervision (3) I, II

Prerequisites: Prior to registration in the course, admission to the program of Administrative Studies, completion concurrently of all other requirements for the elementary administration or supervision credential, and permission of local school administrator and the instructor.

Study of the administration and supervision of an elementary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

267. Fieldwork in Secondary School Administration and Supervision (3) I, II

Prerequisites: Prior to registration in the course, admission to the program of Administrative Studies, completion concurrently of all other requirements for the secondary administration or supervision credential, and permission of local school administrator and the instructor.

Study of the administration and supervision of a secondary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required.

268. Seminar in School Administration (3) Summer

Prerequisite: Consent of instructor.

An intensive study of research on selected problems in the field of school administration. Provision will be made for individual work on social topics of interest to students.

269A-269B. Seminar in School Building Construction and Utilization (3-3)
Prerequisite: Possession of supervision or administration credential, or consent of instructor. Completion of or concurrent registration in 269A is prerequisite to 269B.

A study of all aspects of school buildings and grounds including problems of remodeling existing facilities and the development of new facilities from the planning stage to complete utilization.

270. School Finance, Business Administration, and Law (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor.

A study of public school finance at federal, state and local levels; an analysis of the business administration of schools and a study of school law as it applies to finance, administration and other aspects of school administration.

271. Supervision of Student Teaching (2) Irregular
Open to experienced teachers interested in the teacher education program.

Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement.

272. Seminar in Education of Exceptional Children (3) Irregular
Prerequisite: Education 170.

Principles, trends and research in the education of exceptional children.

273. Seminar in Education of the Mentally Retarded (3) Irregular
Prerequisites: Education 171 or 175 and Psychology 109.

Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis, and assessment.

274A. Utilizing Audiovisual Materials in the Classroom (3) I, Summer
Prerequisite: Education 140.

A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education.

275. Administering the Use of Audiovisual Materials (3) II, Summer
Prerequisite: Education 140 or consent of instructor.

Organizing, supervising, and coordinating audiovisual centers as an integral part of educational systems.

278. Educational Leadership (3) I, II, Summer
Prerequisite: Possession of a valid teaching credential or consent of instructor.

An analysis of the factors and practice in procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision.

Procedures of Investigation

290A. Procedures of Investigation and Report (2) I, II, Summer
For majors in education, concurrent registration in 290B.

Methods of investigation, data analysis, and reporting. Procedures for selecting topics and writing papers, projects, and thesis. Exercises in locating, selecting, analyzing, and summarizing professional literature.

290B. Bibliography (1) I, II, Summer
Exercises in the use of basic reference books, journals, and specialized bibliographies preparatory to a seminar project or to the writing of a thesis.

295A-295B. Seminar (3-3) I, II, Summer
Prerequisites: Education 290 and advancement to candidacy for the master's degree in education.

An intensive study in selected areas of education culminating in a written project. Limited to students following Plan B for the master of arts degree in education.

298. Special Study (1-6) I, II, Summer
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3) I, II, Summer
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316. Directed Teaching (3-7)
Prerequisites: Admission to teacher education; education program approved by the Coordinator of Elementary or Secondary Education. Any grade below C is unacceptable for a credential.
Systematic observation, participation and teaching under supervision in the campus elementary school, the affiliated elementary, junior high and senior high schools. During each semester of student teaching a weekly conference period is required as indicated in the time schedule.

330. Guidance Internship (2-6)
Application to take the course should be made early during the preceding semester.
Supervised internship experience in pupil personnel activities with school age pupils. May be repeated with new content for additional credit.

360. Internship in Public School Administration and Supervision (2-6)
Application to take the course should be made during the preceding semester.
An intensive analysis and extensive practical application of problems and procedures in school administration and supervision. Permission of school district administrator and college staff member required.

371. Directed Internship—Mentally Retarded (4)
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

374. Directed Internship—Speech Correction (4)
Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

375. Directed Internship in Audiovisual Education (2-6)
Application to take the course should be made during the preceding semester.
Supervised internship experience in audiovisual services in the public schools.

NDEA GUIDANCE INSTITUTE FOR 1963-1964

I-231. Theory and Process of Pupil Appraisal (4)
Three lectures and three hours of laboratory.
Prerequisite: Enrollment in NDEA Guidance Institute.
Adaptation of Education 231, designed for NDEA Guidance Institute.

I-232. Theory and Process of Vocational Choice (4)
Three lectures and three hours of laboratory.
Prerequisite: Enrollment in NDEA Guidance Institute.
Adaptation of Education 232, designed for NDEA Guidance Institute.

I-233. Theory and Process of Counseling (4)
Three lectures and three hours of laboratory.
Prerequisite: Enrollment in NDEA Guidance Institute.
Adaptation of Education 233, designed for NDEA Guidance Institute.

I-234. Theory and Process of Group Guidance (2)
One lecture and three hours of laboratory.
Prerequisite: Enrollment in NDEA Guidance Institute.
A course designed for NDEA Guidance Institute.

I-225A-255B. Determinants of Human Behavior (3-3)
Prerequisite: Enrollment in NDEA Guidance Institute.

I-225A: psychological and psycho-physiological determinants; I-225B: social cultureal, and semantic determinants. A course designed for NDEA Guidance Institute.

I-239. Professional Seminar in Guidance (2)
Prerequisite: Enrollment in NDEA Guidance Institute.

A course designed for NDEA Guidance Institute.

ENGINEERING

IN THE DIVISION OF ENGINEERING

Faculty

Professors: Capp (Chairman), Lodge, Morgan, Shutts, Stone, S. H., Walling

Associate Professors: Bauer, Fitz, Johnson, P. E., Quiett, Rao, Stone, H. L.

Assistant Professors: Bedore, Bilterman, Borst, Brown, W. L., Burns, Conly, Dahlke, Dharmarajan, Hoel, Mastin, Skaar

Lecturers: Evans, R., Leadon, Van Eden

Offered by the Division

For a description of the following programs, refer to the section on Professional Curricula in Engineering.

Master of science degree in mechanical engineering.

Major in engineering with the B.S. degree, with fields of specialization is aerospace, civil, electrical and electronic, and mechanical engineering.

Minor in engineering.

LOWER DIVISION COURSES

A. Introduction to Engineering (1)
No prerequisite.

A survey of the fields of engineering, designed to familiarize the student with the nature, the requirements, the responsibilities, and the opportunities of the profession.

2. Plane Surveying (3)
One lecture and six hours of laboratory.
Prerequisite: Mathematics 21 or 40.

Use, care, and adjustment of surveying equipment. Introduction to standard procedures, techniques of plane surveying, and plane table mapping.

20A-20B. Engineering Graphics (2-2, or 3-2) I, II
Six or nine hours of laboratory.

Prerequisites: Industrial Arts 21, or equivalent, and Mathematics 40, or equivalent (may be taken concurrently). Engineering 20A is prerequisite to 20B. Students who have not completed Industrial Arts 21 or who fail the placement examination, will enroll in 20A for three units.

Representation and analysis of basic engineering problems using systems of projection, co-ordinate systems, and space solutions with mathematical correlation. Shape and size description, sketching, and mechanical illustration. Theory and standard practices of graphical communication. Graphical computation, functional scales, nomography, and representations and analysis of empirical data.

23. Manufacturing Process (3)
Two lectures and three hours of laboratory.
Prerequisite: Sophomore standing.

Analysis of the various tools and processes utilized in modern manufacturing and fabrication operations. Field trips are made to local manufacturing organizations.

24. Engineering Measurements (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 50 and Engineering 20B.
Fundamental principles of physical measurement as applied to engineering science. Recognition, analysis, and control of errors, evaluation of observations, reliability of computations, graphical representation of measured quantities, curve fitting.

25. Engineering Materials (3) I, II
Prerequisites: Chemistry 1B or 1E, Physics 4B, and Mathematics 51.
Atomic and molecular structure of materials utilized in engineering. Analysis of the relationships between structure of materials and their mechanical, thermal, electrical, corrosion and radiation properties, together with examples of specific application to engineering problems.

50. Engineering Mechanics—Statics (3) I, II
Prerequisites: Physics 4A and credit or concurrent registration in Mathematics 51.
Engineering applications of the principles of static equilibrium of force systems acting on rigid bodies. Centroids and moments of inertia, introduction to fluid statics, and dry friction.

51. Engineering Mechanics—Dynamics (3) I, II
Prerequisites: Engineering 50 and credit or concurrent registration in Mathematics 52.
Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion, work and energy, linear and angular momentum. Applications to engineering problems. Vector notation will be used. Not open to students with credit for Engineering 102.

65A-65B. Industrial Practice (2-2)
Prerequisite: Sophomore standing in engineering. Selection based on personal interview, following written application.
Supervised training in co-operating industrial organizations. First year of a three-year program providing the opportunity for selected students to correlate their formal college training with industrial experience at corresponding levels of responsibility and difficulty.

UPPER DIVISION COURSES

100A. Electric Circuits (3) I, II
Prerequisites: Physics 4B and Mathematics 51.
Direct-current circuits, magnetic circuits, induced voltages, single-phase and polyphase alternating-current circuits, coupled circuits, the transformer and introduction to network analysis.

100B. Electrical Machinery (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 100A.
Theory of operation and the analysis of the characteristics of transformers, DC and AC motors and generators. Associated control devices.

100C. Electric and Magnetic Fields (3) I, II
Prerequisites: Physics 4B and Mathematics 51.
Electric and magnetic fields using vector notation. Capacitance and inductance. Magnetic fields in generators, motors, and transformers.

101. Elements of Applied Electronics (2) I, II
Prerequisite: Engineering 100A.
Application of electron tubes, transistors in typical electronic circuits. Analysis of the operational characteristics of electron tubes and transistors. Emphasis on their utilization in engineering devices and systems.

102. Dynamics (3) I, II

Prerequisites: Engineering 50, and Mathematics 52 or registration in Mathematics 117.

Fundamentals of Newtonian mechanics. Elements of vector algebra and calculus. Kinematics and kinetics of particles and rigid bodies. Newtonian laws of motion, work and energy, linear and angular momentum. Applications to engineering problems. Primarily for transfer students who have not had a course in dynamics. Not open to students with credit for Engineering 51.

103. Electrical Engineering Laboratory (1) II

Three hours of laboratory.

Prerequisites: Engineering 100B and credit or concurrent registration in Engineering 101. Not open to students filing an electrical engineering master plan.

A laboratory course to include selected experiments in electrical circuits, electrical machinery, and electronics.

108. Thermodynamics (4) I, II

Three lectures and three hours of laboratory.

Prerequisites: Physics 4C, Engineering 24 and 25, and credit or concurrent registration in Engineering 51 or 102.

Generalized concepts of force, displacement, work and energy; development of laws of classical thermodynamics; general equations of thermodynamics; application to simple chemical systems.

109. Physical Metallurgy (3) I

Two lectures and three hours of laboratory.

Prerequisites: Engineering 25 and Physics 4C.

Fundamentals of ferrous and nonferrous metallurgy in those aspects which affect physical qualities of metals. Effect of heat treatment, aging, and other processes on physical properties.

115. Fluid Mechanics (4) I, II

Three lectures and three hours of laboratory.

Prerequisites: Engineering 51 or 102; credit or concurrent registration in Engineering 108 and Mathematics 118A.

Statics and dynamics of incompressible and compressible fluids. Viscosity, fluid friction, laminar and turbulent flow. Flow in pipes and open channels. Introduction to hydrodynamics and flow about immersed objects.

116. Resistance of Materials (4) I, II

Three lectures and three hours of laboratory.

Prerequisites: Engineering 25; Engineering 51 or credit or concurrent registration in Engineering 102; and credit or concurrent registration in Mathematics 118A.

Elastic and plastic properties and strength of engineering materials. Analysis of types of failures, stress analysis and deformation of simple structural and machine members. Laboratory testing procedures and experimental confirmation of elastic and plastic theory.

118. Transfer and Rate Processes (3) I, II

Prerequisites: Mathematics 118A and credit or concurrent registration in Engineering 115.

Fundamentals of rates of change in enthalpy and composition of matter; heat and mass transfer and chemical reaction rates.

120A. Structural Analysis I (3) II

Prerequisite: Engineering 116.

Principles of mechanics applied to analysis of beams, frames, trusses, and three-dimensional frameworks. Graphical methods, influence lines; deflections; introduction to statically indeterminate structures and moment distribution.

120B. Structural Analysis II (3) I

Prerequisite: Engineering 120A.

Analysis of statically indeterminate structures by force and displacement methods. Introduction to plastic behavior of structures and structural dynamics. Utilization of the digital computer.

121. Reinforced Concrete (3) I
Prerequisite: Engineering 120A.
Properties and characteristics of reinforced concrete; design of structural components. Introduction to plastic theory and limit design.

122. Soil Mechanics and Foundation Engineering (3) I
Two lectures and three hours of laboratory.
Prerequisites: Geology 53 and credit or concurrent registration in Engineering 121.
Principles of mechanics of soils: physical and mechanical properties, consolidation theory, lateral earth pressures, settlements, and bearing capacities. Laboratory studies applied to design problems.

123. Applied Hydraulics (3) I
Prerequisite: Engineering 115.
Application of principles of fluid mechanics in the fields of hydrology, water supply, hydraulic machinery, drainage, and waste disposal.

125. Sanitary Engineering (3) II
Prerequisite: Engineering 123.
A study of water treatment plants, water distribution systems, sewage collection systems, and sewage disposal facilities; introduction to industrial and radioactive waste disposal; stream sanitation.

126. Engineering Photogrammetry (3) I
Two lectures and three hours of laboratory.
Prerequisite: Engineering 24.
Principles of metrical photography as they apply to engineering. Use of aerial and terrestrial photographs for interpretation of topography, soil types and drainage conditions for engineering works. Stereoscopic compilation of maps from photographs.

127. Highway Engineering (3) I
Prerequisites: Engineering 128 and concurrent registration in Engineering 123.
Problems of street and highway administration; geometric design; traffic engineering; subgrade structures; highway pavements. (Formerly entitled Transportation Engineering.)

128. Surveying for Civil Engineers (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 24 or 2.
Principles of control surveys, highway curves, city surveys, earthwork, engineering astronomy, precise surveys. Introduction to photogrammetry.

130. Network Analysis (4) I
Prerequisites: Engineering 100A and Mathematics 52.
Analysis of complex direct-current and single-phase and poly-phase alternating-current networks. Four-terminal network theory.

131. Electromechanical Control Devices (3) I
Two lectures and three hours of laboratory.
Prerequisites: Engineering 51 or 102; Engineering 100B and Mathematics 118A; and credit or concurrent registration in Engineering 101.
Application of amplidynes, thymatrols, rototrols, synchros, and selsyns in servo-systems and other devices.

132. Time-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 130 and Mathematics 118A.
Transient analysis of circuits containing resistance, inductance, and capacitance with various input wave forms by means of the Laplace-transform method.

134A. Analysis and Design of Electronic Circuits (4) I
Three lectures and three hours of laboratory.
Prerequisites: Engineering 101, 130, and Mathematics 118A.
A unified treatment of vacuum-tube and transistor voltage and power amplifiers utilizing graphical methods and equivalent circuits. Feedback theory, tuned amplifiers, regulated power supplies, and oscillators; theoretical analysis of amplitude, frequency, and phase modulation; modulator and detector circuits; applications to communication field.

134B. Analysis and Design of Electronic Circuits (4) II
Three lectures and three hours of laboratory.
Prerequisite: Engineering 134A.
Continuation of Engineering 134A.

136. Electronic Instrumentation (2)
Prerequisite: Engineering 101.
Application of electronics to the instrumentation of mechanical, hydraulic and electrical devices. Indicating and recording instruments.

137. Communication Networks (3) I
Prerequisites: Engineering 100C, 130, and Mathematics 118A.
Theory and application of transmission lines including analysis by matrix notation; use of Smith chart and other transmission line charts; impedance-matching with transmission line stubs and lumped constants; theory and design of constant-k, m-derived, and other types of filter networks.

138. Frequency-Domain Analysis of Linear Networks (3) I
Prerequisites: Engineering 132 and Mathematics 118B.
Complex Fourier series, Fourier integrals, Fourier transform pairs, and the Laplace transform with emphasis on the physical interpretation. Magnitude and phase response curves in terms of s-plane and log-db plots, transient analysis, modulation and noise.

139. Advanced Field Theory (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 137 and Mathematics 118B.
Time-varying electric and magnetic fields. Application of Maxwell's equations to wave propagation; skin effect, circuit impedance elements; vector potential, and other time-varying electrical phenomena; wave guides and resonators, electromagnetic radiation.

140. Principles of Heat Transfer (3) I
Prerequisite: Engineering 118.
Heat transfer by conduction, convection, radiation, and combinations thereof; introduction to aerodynamic heating and heat transfer by phase change.

141. Internal Combustion Engines (4) I
Three lectures and three hours of laboratory.
Prerequisite: Engineering 148.
Analysis of idealized and real internal combustion engine cycles; combustion problems; performance of reciprocating and rotary types of internal combustion engines. Principles of reaction motors.

142. Fuels and Combustion (3) I
Prerequisite: Engineering 108.
Types of fuels; stoichiometric and thermochemical analysis of combustion. Process of combustion. Physical properties of fuels. Applications to combustion in engines and furnaces.

✓**143. Gas Dynamics (3) II**
Prerequisite: Engineering 148.
Thermodynamics of high velocity compressible fluid flow. Shock regions; adiabatic and diabatic flow. Applications to the propulsive duct and discharge nozzles.

144. Air Conditioning and Refrigeration (3)
Two lectures and three hours of laboratory.
Prerequisite: Engineering 108.
Applications of thermodynamics and fluid mechanics to problems in air conditioning and refrigeration involved in several fields of engineering.

145. Mechanics of Machinery (3) II
Two lectures and three hours of laboratory.
Prerequisite: Engineering 51 or 102.
An extension of the principles of statics and dynamics to mechanisms and to mechanical systems. Analysis of velocity and acceleration and the determination of static and dynamic forces. Evaluation of stability of systems.

146. Elements of Machine Design (3) I
Prerequisite: Engineering 116.
Application of mechanics, physical properties of materials, and strength of materials to the design of machine elements.

147. Introduction to Mechanical Vibrations (3) I
Prerequisites: Engineering 51 or 102, 116, and Mathematics 118A.
Analysis of mechanical vibration; single- and multi-degree of freedom systems; free and forced vibrations; vibration isolation; vibration absorbers. Theory of vibration measuring instruments.

148. Engineering Thermodynamics (4) II
Three lectures and three hours of laboratory.
Prerequisites: Engineering 108 and credit or concurrent registration in Engineering 115.
Further development of the laws of classical thermodynamics; introduction to kinetic theory; applications to energy transformation processes.

149. Kinematics (3) II
Prerequisite: Engineering 145.
Geometry of linkages, with special emphasis on methods of kinematic synthesis.

150A. Subsonic Aerodynamics (3) II
Prerequisites: Engineering 51 or 102; and credit or concurrent registration in Engineering 115 and Mathematics 118A.
Fluid flow, airfoil and wing theory, drag, propeller theory, aircraft and engine performance, maneuvers.

✓ **150B. Supersonic Aerodynamics (3) I**
Prerequisite: Engineering 150A.
Aerothermodynamics, waves in supersonic flow, equations of frictionless flow, small perturbation theory, similarity rules of high-speed flow.

151A. Aeronautical Stress Analysis (3) II
Prerequisites: Engineering 51 or 102, Engineering 116 and credit or concurrent registration in Mathematics 118A.
Equilibrium of forces, space structures, semimonocoque structures, air-load distribution.

✓ **151B. Aeronautical Stress Analysis (3) I**
Prerequisite: Engineering 151A.
Mechanical properties of aircraft materials, design of aircraft structural components, special methods of analysis.

✓ **152. Aircraft Propulsion Systems (3) II**
Prerequisite: Engineering 148 or 150B.
Theory and performance characteristics of aircraft propulsion systems including reciprocating engines, turbo-jets, ram-jets, etc.

√ **153. Aerospace Flight Mechanics (3)**
Prerequisites: Engineering 51 or 102, 150A, and Mathematics 118A.
Aerodynamics and dynamics of ballistic missiles; guidance systems; orbits and space trajectories; effects of aerodynamics, mass, rotation and shape of the earth on ballistic and space trajectories. Computer programming and problem solutions will be emphasized.

160A-160B. Principles of Chemical Engineering (3-3)
(Same course as Chemistry 160A-160B)
Prerequisite: Credit or concurrent registration in Engineering 108 or Chemistry 109A or 110A, or equivalent.
Industrial stoichiometry; fluid flow and heat transfer as applied to unit operations such as evaporation, distillation, extraction, filtration, gas-phase mass transfer, drying, and others. Problems, reports, and field trips.

165A-165B-165C-165D. Industrial Practice (2-2-2-2)
Prerequisites: Engineering 65A and 65B.
Supervised training in cooperative industrial organizations. Second and third years of a three-year program providing the opportunity for selected students to correlate their formal training with industrial experience at corresponding levels of responsibility and difficulty.

166. Honors Course (Credit to be arranged)
Refer to the Honors Program.

173. Motion and Time Study (3) I, II
(Same course as Business Administration 137)
Two lectures and three hours of laboratory.
Prerequisite: Business Administration 135.
Work simplification through methods improvements; operations analysis; flow charts, calculation of time standards; work and speed analysis; new developments in job timing, standard setting and motion economy study.

176. Production and Quality Control (3) I, II
(Same course as Business Administration 136)
Prerequisites: Business Administration 135 and Mathematics 130A.
Forecasting, planning and controlling production flow; techniques for planning and controlling quality of produced and purchased items; emphasis on modern quantitative methods particularly applicable to scheduling and control.

180. Principles of Engineering Economy (3)
Prerequisite: Engineering 115.
Analysis of the costs of development and promotion, construction, operation, depreciation and depletion. Capital recovery, income, return and yield. Valuations and appraisals, cost analysis and financial analysis. Application to engineering problems.

181. Hydrodynamics (3)
Prerequisites: Engineering 51 or 102 or Physics 105, and Mathematics 118A or 119 or 124.
Kinematics, equations of continuity, energy, and momentum of perfect fluids. Introduction to conformal transformations. Three-dimensional and two-dimensional irrotational motion, with applications to physical problems. Vector notation will be used.

182. Transistor Circuit Analysis (3) II
Prerequisites: Engineering 134B and Mathematics 118B.
Analysis and design of transistor voltage and power amplifier circuits by use of duality and matrix methods. Feedback amplifiers, audio amplifiers, video amplifiers, power supplies, and oscillators; transient analysis and noise considerations.

183. Fuels and Lubricants Laboratory (1)
Three hours of laboratory.
Prerequisite: Engineering 108.
Performance and engineering interpretation of standardized tests of fuels and lubricants. Investigation and analysis of test codes.

186. Advanced Resistance of Materials (3) II

Prerequisites: Engineering 51 or 102, 116, and Mathematics 118A.

Advanced topics in resistance of materials including combined stresses, buckling, and failure theories. Introduction to elastic stability and instability.

187. Methods of Analysis (3)

Two lectures and three hours of laboratory.

Prerequisite: Mathematics 118A.

Solutions of advanced engineering problems in fluids, thermodynamics and electricity utilizing the methods of analogs, dimensional analysis and the theory of models.

188. Digital Solutions of Engineering Problems (3) II

Prerequisites: Mathematics 7 and 118A, or consent of instructor.

Digital solution of classes of engineering problems. Numerical analysis and flow charting for solutions. Computer characteristics, and an introduction to problem oriented computer languages.

189. Linear Feedback Control Systems (3) I

Prerequisites: Engineering 51 or 102, 100B, and Mathematics 118A or 119. Not open to students filing an electrical engineering master plan.

Analysis of feedback characteristics of linear, mechanical, electrical, hydraulic and pneumatic systems using Nyquist, Bode and root-locus diagrams.

190A. Engineering Applications (Civil Engineering Field) (4) II

Two lectures and six hours of laboratory.

Prerequisites: Engineering 121 and 122.

Introduction to structural design; structural connections; tension and compression members; beams; Building Code requirements applied to design of buildings of various structural materials.

190B. Engineering Applications (Civil Engineering Field) (4) II

Two lectures and six hours of laboratory.

Prerequisites: Engineering 123 and 127.

Principles of hydraulics and highway engineering applied to civil engineering design problems; solution of problems by digital computer.

190C. Engineering Applications (Electrical Engineering Field) (4) II

Three lectures and three hours of laboratory.

Prerequisites: Engineering 131, 132, and 134A.

Advanced engineering electronics including the synthesis of electrical control systems involving electronic and electro-mechanical devices.

190E. Engineering Applications (Mechanical Engineering Field) (4) II

Three lectures and three hours of laboratory.

Prerequisites: Engineering 146 and 148.

Application of engineering science to the design and evaluation of heat-power systems such as propulsion systems, energy conversion systems, or environmental control systems.

190F. Engineering Applications (Mechanical Engineering Field) (4) II

One lecture and nine hours of laboratory.

Prerequisites: Engineering 145, 146, and 148.

Applications of fundamental engineering principles to the practical design of machinery. Considerations of material properties, stress analysis, mechanisms, kinematics, economics, production, and appearance are taken up as needed. Practical design methods utilizing empirical techniques are emphasized and explained in the individual design of a simple machine.

190G. Engineering Applications (Aerospace Engineering Field) (4) II

Three lectures and three hours of laboratory.

Prerequisites: Engineering 150B, 151B, and credit or concurrent registration in Engineering 152.

Fundamental engineering principles applied to the analysis and design of aircraft control systems. Control surface theory, stability (static and dynamic) and control, operational methods of solving problems, stability criteria, root-locus method, artificial stabilization, preliminary design of an aircraft.

✓ **190H. Engineering Applications (Aerospace Engineering Field) (4) II**

Three lectures and three hours of laboratory.

Prerequisite: Engineering 151B.

Applications of engineering principles to a comprehensive problem in the structural analysis and design of an aircraft.

196. Advanced Engineering Topics (2 or 3) I, II

Prerequisite: Consent of instructor.

Analysis of modern developments in engineering. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

GRADUATE COURSES IN MECHANICAL ENGINEERING

ME 200. Seminar in Mechanical Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in one of the fields listed below. May be repeated with new subject matter for additional credit.

A. Thermodynamics and fluid flow
B. Cryogenics
C. Engineering materials
D. Engineering systems
E. Operations research in engineering
F. Nuclear engineering
G. Mechanical design

✓ **ME 212. Gas Dynamics (3)**

Prerequisites: Engineering 143 and Mathematics 118B.

Further considerations of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

✓ **ME 213. Aircraft and Missile Propulsion (3)**

Prerequisites: Engineering 142, 143 and Mathematics 118B.

Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and intercooling. Thermodynamic analysis and performance of turbojet engines, ramjet engines, and rocket motors. Rocket jet propellant systems. Dynamics of rocket propulsion free of gravity and air resistance.

✓ **ME 214A-214B. Thermodynamics (3-3)**

Prerequisites: Engineering 148; Mathematics 118B or consent of instructor. ME 214A is prerequisite to ME 214B.

A review of classical thermodynamics. The utilization of the methods of kinetic theory and statistical mechanics. Thermodynamics of mixtures. Irreversibility. Comparison of classical and irreversible thermodynamics.

ME 215A-215B. Heat Transfer (3-3)

Prerequisites: Engineering 118; Mathematics 118B or consent of instructor. ME 215A is prerequisite to ME 215B.

Semester I. Convection heat transfer, high speed flow, mass transfer effects. Boiling heat transfer. Introduction to conduction heat transfer.

Semester II. Conduction heat transfer, multidimensional conduction processes, transient analyses. Solid body and gaseous radiation and their measurements.

ME 220. Mechanical Vibrations (3)

Prerequisites: Engineering 147 and credit or concurrent registration in Mathematics 118B.

The application of vibration analysis to the problems of mechanical design, including vibration control, vibration instrumentation, and the response of machines, structures, and mechanical systems to various kinds of excitation. Approximate and digital computer solutions of vibration problems.

ME 221. Stress Analysis (3)

Prerequisites: Engineering 186 and Mathematics 118B.

Topics in applied elasticity, advanced study of the resistance of materials and experimental stress analysis. Failure theories, energy methods, limit design, theory of plates and shells. Photoelasticity, brittle lacquers, strain gages, and analogs in determining static, dynamic and residual stress distributions.

ME 222. Dynamics of Machinery (3)

Prerequisites: Engineering 146, 149, and credit or concurrent registration in Mathematics 118B.

Mathematical analysis of motion, stresses and deflections as applied to the design of machines. Dynamics of constrained systems; stability and system control. Application to systems involving mechanical, electrical and fluid links.

ME 224. Fluid Power and Control Systems (3)

Prerequisite: Engineering 189 or equivalent.

Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.

GRADUATE COURSES IN AEROSPACE ENGINEERING

AE 202. Aeroelasticity (3)

Prerequisites. Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.

Aircraft and missile structures deformed under static and dynamic loads; aeroelastic instability, vibration modes, divergence, loss of control and alteration of lift distribution; introduction to flutter analysis.

GRADUATE COURSES IN CIVIL ENGINEERING

CE 200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

Advanced study of or within one phase of civil engineering such as hydraulics, surveying, hydrology, transportation, structures, soil mechanics and foundations, sanitary engineering. May be repeated with new content for additional credit.

CE 201. Advanced Theory of Structures (3)

Prerequisites: Engineering 120B and Mathematics 118A.

Analysis of statically indeterminate structures by virtual work. Advanced treatment by slope deflection, moment distribution; column analogy. Analysis of arches; secondary stresses in trusses; advanced treatment of influence lines.

GRADUATE COURSES IN ELECTRICAL ENGINEERING

EE 201. Non-linear Feedback Control Systems (3)

Prerequisite: Engineering 189 or 190C or Physics 153.

Analysis and synthesis of feedback control systems containing one or more non-linear elements. Use of describing functions. Introduction to sampled-data systems.

GRADUATE COURSES IN ENGINEERING MECHANICS

EM 200. Seminar (2 or 3)

Advanced study of, or within, one phase of engineering mechanics, such as elasticity, plasticity, rheology, and micromeritics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new subject matter for additional credit.

EM 201. Advanced Dynamics (3)

Prerequisites: Engineering 102 or equivalent, and Mathematics 118A.

Kinematics and kinetics of systems of particles and rigid bodies with special reference to engineering problems. Moving reference axes, generalized coordinates, Lagrangian equations, Hamilton's principle and variational methods.

EM 203. Theory of Vibrations (3)

Prerequisites: Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.

Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

EM 221. Theory of Elasticity (3)

Prerequisites: Engineering 116 and credit or concurent registration in Mathematics 118B. Engineering 186 is recommended.

Analysis of stress and strain: Stress-strain relations; the equations of elasticity; uniqueness theorem; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

EM 233. Theory of Plasticity (3)

Prerequisite: Engineering Mechanics 221.

Inelastic stress-strain relations. Solutions to engineering problems with ideally-plastic, strain-hardening, and visco-elastic materials.

EM 243. Advanced Fluid Mechanics I (3)

Prerequisites: Engineering 115 and credit or concurrent registration in Mathematics 118B.

Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stokes equations. Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

EM 244. Advanced Fluid Mechanics II (3)

Prerequisite: Engineering Mechanics 243.

A continuation of Engineering Mechanics 243. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

GRADUATE COURSES IN ENGINEERING

E 297. Problem Analysis (3)

Prerequisite: Consent of graduate adviser.

Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

E 298. Special Study (1-3)

Individual study. Three units maximum credit.

Prerequisite: Consent of staff; to be arranged with division chairman and instructor.

E 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

ENGLISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus Faculty: Dickhaut, Trail

Professors: Adams, J. R., Block (Chairman), Burnett, Gulick, Haskell, Johnson, F., Kennedy, Marchand, Phillips, G., Sanderlin, Shouse, Theobald, Tidwell

English

Associate Professors: Baker, J., Frey, Monteverde, Perkins, Sandstrom, Tozer, Widmer

Assistant Professors: Dickinson, Gellens, Green, Gross, Hinkle, Singleton, Vanderbilt, Wanless

Instructor: McCoy

Lecturers: Anderson, J., Black, Chater, Hill, Homitz, Janeck, Loomis, Palmer, Prenn

Offered by the Department

Master of arts degree with a major in English; and master of arts degree for teaching service with a concentration in English. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in English with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in English. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

COMPARATIVE LITERATURE

For courses in world literature, see comparative literature; these courses give credit toward the English major or minor or toward the minor in comparative literature.

CREDIT IN COURSE SEQUENCES

All elective year courses in the English Department may be begun in either semester, and either semester may be taken singly for credit.

PREREQUISITES

English 1A is prerequisite to all English courses except English 2.

LOWER DIVISION COURSES

R. Reading Laboratory (0) I, II

A semitutorial service offered by the English Department to those wishing to improve reading ability, or secure individual help with study problems. Open to all students at any level of college work.

S. Spelling (0) I, II

A semitutorial service offered by the English Department to those wishing to improve their spelling through an intensive review of principles and through practice. Open to students at any level of college work.

W. Writing Laboratory (0) I, II

A semitutorial service offered by the English Department to those wishing assistance in writing projects, either remedial or advanced. Open to students at any level of college work.

1A-1B. First Year Reading and Composition (3-3) I, II

Prerequisite: English 1A is prerequisite to 1B.

First semester: Principles and methods of expository writing. 1A is a required course in general education.

Second semester: Introduction to the study of poetry, fiction, and drama, with further practice in writing.

English 1B is not open to students with credit or concurrent enrollment in English 2.

1-X. English for International Students (3) I, II

A first course in English grammar and composition. To be taken by international or bilingual students as a substitute for English 1A. Students are assigned to this course upon the recommendation of the faculty adviser and the student's performance on the English examination for foreign students. As a substitute for English 1A, this course will meet the general education requirement for written communication.

2. Freshman Literature (3) I, II
Training in reading literary materials with insight and vividness.

10. Individual Reading (1) I, II
Development of personal tastes for leisure-time reading through lectures and written reports. May be taken a second time with new material.

20. Latin and Greek Word Derivation (3) I, II
(Same course as General Language 20)
A general and elementary course in philology. Study of Latin and Greek roots of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

50A-50B. Masterpieces of American Literature (3-3) I, II
Semester I: Major American writers from the beginning to 1860. Semester II: American literature from 1860 to the present.

52A-52B. Masterpieces of World Literature (3-3) I, II
(Same course as Comparative Literature 52A-52B)
A chronological survey from Homer to modern times. The first semester stresses the classical epic and tragedy. The second semester stresses more recent literature, including prose fiction, the drama, and the essay.

56A-56B. Survey of English Literature (3-3) I, II
Prerequisite: English 2 or 1B or consent of instructor.
The study of some important works of English literature from the Anglo-Saxon period through the Victorian age, with emphasis upon the literary history of each period.

60A-60B. Literature and Personality (3-3)
A close study of a limited number of the great creators of literature. The goal of the course is to derive, from markedly different specific works, orderly and generalized methods for the interpretation of great literature.

61. Sophomore Composition (3) I, II
Prerequisite: English 1A.
Practical writing beyond the freshman level.

62. Directed Writing (3) I, II
Guidance and extensive practice in effective creative writing, particularly description and narration.

UPPER DIVISION COURSES

100. English Fundamentals (0) I, II
Review of spelling, punctuation, grammar, and usage; exercises in vocabulary building and in fundamental reading skills; theme writing. Three meetings a week with additional optional work in the Reading and Writing Laboratory.

101A-101B. Modern Continental Fiction (3-3)
(Same course as Comparative Literature 101A-101B)
Selected works by modern novelists and short story writers of continental Europe. First semester, the late nineteenth century; second semester, the twentieth century.

106. Creative Writing (3) I
A writing workshop in which the students are given opportunity to criticize each other's work. Emphasis on narrative and description, but freedom to pursue whatever writing forms may interest the student most. May be taken a second time with new material.

110. Individual Reading (1) I, II
An advanced course in the reading of modern drama, poetry and fiction.

113. American English (3) I
The development of American English; regional and cultural differences in pronunciation, grammar, and vocabulary.

115. The Bible as Literature (3) I
(Same course as Comparative Literature 115)
A study of the narrative, poetry, and prophecy of the King James version of the Bible. Readings, reports, lectures, and discussions.

116A-116B. The Age of Elizabeth (3-3)
Semester I: Poetry and prose, exclusive of drama. Semester II: The drama to 1642, excluding Shakespeare.

117A-117B. Shakespeare (3-3) I, II
The first semester gives special emphasis to the histories and comedies; the second, to tragedy and the dramatic romances.

118A-118B. Eighteenth Century English Literature (3-3) I, II
The first semester emphasizes the social satire of Swift, Pope, Addison, Steele, Dryden, Gay, Prior; and also the first stirrings of the romantic revolt in a number of important poems and prose works. The second semester is devoted to Johnson and Boswell and their circle and to a significant romantic literature antedating the romantic outburst.

119A. English Romantic Poetry (3) I
The culmination of the romantic movement in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, in relation to the thought of the revolutionary period.

119B. Victorian Poetry (3) II
Tennyson and Browning with their contemporaries and successors, relating English poetry to Nineteenth Century life and thought.

120A. The Seventeenth Century: Milton (3) II
The poetry and major prose works of Milton, with stress on the development of his art and mind; the political and religious background and the events in which Milton participated.

120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) II
The Metaphysical and Cavalier poets in relation to the cultural and literary backgrounds of the sixteenth, seventeenth, and eighteenth centuries.

126A. Romantic and Victorian Prose (3) I
Romantic and mid-Victorian prose writers, including Coleridge, Hazlitt, Lamb, DeQuincey, Carlyle, Landor, Macaulay, and Mill, related to the literary, political, and social movements of the period.

126B. Late Nineteenth Century British Prose (3) II
The essays of Arnold, Thomas Huxley, Newman, Pater, Ruskin, and Stevenson. Study of scientific, aesthetic, and ethical backgrounds.

129A. Early Modern British Literature (3) I
Selected drama, fiction, and poetry of 1880-1920: Wilde, Shaw, Butler, Hardy (fiction), Bennett, Galsworthy, Wells, Synge, Conrad, Kipling, Yeats (earlier works), Maugham, and certain Georgian and World War I poets.

129B. Contemporary British Literature (3) II
Selected British prose and poetry largely influential after 1920: Joyce, T. S. Eliot, Hardy (poetry), Forster, Virginia Woolf, Lawrence, Aldous Huxley, Yeats (later works), Greene, Auden, Dylan Thomas, and some representative writers in major current movements.

131. American Literature: 1820-1860 (3) I
The study of the important romantic writers, with emphasis on the New England group.

132. The Frontier and American Literature (3) I, II
The influence of the frontier upon American literature, studied through various regions and movements. Examinations of source materials, biographies, and representative writers.

133. American Literature: 1860-1910 (3) II

The rise of realism in American literature. Influences, foreign and native, which promoted the movement. Definition of realism. The literary creed of the realists. The romantic attack and the realist defense.

134. American Literature: 1910 to the Present (3) I, II

Ideas and forms in representative poetry and prose.

143A-143B. The English Novel (3-3)

The history of the English novel from its beginnings to the present century. Emphasis in the first semester will be on the Eighteenth Century and in the second semester on the Nineteenth Century.

149. The Study of Poetry (3) I, II

A course proceeding from simpler to more complex poetic productions. Emphasis on current direction in poetry, and on problems of form. The inclination to write poetry is encouraged.

151. Chaucer (3) I

A study of Chaucer's works, with emphasis on "The Canterbury Tales" and "Troilus and Criseyde."

152A-152B. World Drama (3-3)

(Same course as Comparative Literature 152A-152B)

Study of selected tragedies and comedies from Asiatic, European, English, and American literature, with emphasis upon the human problems depicted therein and upon the timelessness of certain themes, such as those of Electra and Medea. Lectures, discussions, and reports on readings.

162. The Writing of Fiction (3) II

Prerequisite: Consent of instructor.

Constructing and writing short stories for publication.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

189. Studies in American Folklore (3) I

American folk songs, tales, legends, superstitions, proverbs, and speech, with particular emphasis on one of these.

191. Advanced Composition (3) I, II

A course designed for prospective teachers of English. This is not a methods course, but a content course in grammar, composition, and journalism. Required of all teaching majors in English; open to other students as an elective.

192. The English Language (3) I, II

Prerequisite: Open only to seniors and graduate students.

The study of the history of the English language, of its words and structure, of the changes in inflections, pronunciation, vocabulary, and meaning, and of its use as an instrument of communication and human living.

195A. History of Literary Criticism (3) I

Prerequisite: Open only to seniors and graduate students.

A historical survey of the principles and practices of literary criticism from Greek times to the nineteenth century. Readings in the works of Aristotle, Horace, Longinus, Sidney, Boileau, Lessing, Sainte-Beuve, Coleridge, and others.

195B. Theory and Practice of Modern Criticism (3) II

Prerequisite: Open only to seniors and graduate students.

A study of the theory and practice of selected nineteenth and twentieth century critics, with attention to the distinctive features of their approach to traditional and modern literary texts.

196. General Linguistics (3) I
(Same course as General Language 196)
Prerequisite: Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.

A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

198. Comprehensive Reading and Survey (3) II
Prerequisite: Open only to students with nine upper division units in English.

A study of major movements in English literature through a review of important writers and key works. Individual programs of readings to fill the needs of each student.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

GRADUATE COURSES

223. Old English (3)
Prerequisites: Twelve units of upper division work in English.

Elementary grammar and reading in Old English prose and poetry; introduction to *Beowulf*. (Formerly offered as English 193.)

227. English Linguistics (3)
Prerequisites: Twelve units of uper division work in English, including either English 192 or 196.

The phonological, grammatical, and lexical structure of English. (Formerly offered as English 197.)

260. Problems of Literary Creation (3)
Prerequisites: Consent of instructor and departmental adviser.

Criticism and coaching in the larger forms. May be repeated with new content for additional credit, to a maximum of six units.

290. Bibliography and Methods of Literary Research (3)
Prerequisite: 12 units of upper division English.

Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research, including editorial procedures. Recommended for the first semester of graduate work. Prerequisite to graduate seminar.

291. Seminar: A Major Author (3)
Prerequisite: 12 units of upper division work in English and English 290.

The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content for additional credit.

292. Seminar: A Cultural Period (3)
Prerequisite: 12 units of upper division work in English and English 290.

The study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution, or the like. May be repeated with new content for additional credit.

293. Seminar: A Literary Problem (3)
Prerequisite: 12 units of upper division work in English and English 290.

The study of a literary problem, such as Regionalism in America, or European influences on American Literature, or the like. May be repeated with new content for additional credit.

294. Seminar: A Literary Type (3)
Prerequisite: 12 units of upper division work in English and English 290.

The study of a literary type, such as the Personal Essay, Epic, Tragedy, and the like. May be repeated with new content for additional credit.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

FRENCH

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Brown, E. M., Messier
Associate Professor: Piffard
Assistant Professors: Cox, Glasgow, Jenkins

Offered by the Department of Foreign Languages

Master of arts degree with a major in French; and a master of arts degree for teaching service with a concentration in French. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in French with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in French. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

HIGH SCHOOL EQUIVALENTS

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on French culture and civilization, minimum essentials of grammar.

2. Elementary (4) II
Four lectures and one hour of laboratory.
Prerequisite: French 1 or two years of high school French.
Continuation of French 1.

3. Intermediate (4) I
Prerequisite: French 2 or three years of high school French.
A practical application of the fundamental principles of grammar. Reading in French of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. Not open to students with credit in French 7A-7B or 8A-8B.

4. Intermediate (4) II
Prerequisite: French 3 or four years of high school French.
Continuation of French 3.

7A-7B. Intensive Reading Course in French (2-2)
Prerequisites: French 1 and 2 or three years of high school French.
Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in French. Open only to students preparing for departmental reading examinations. Not open to students with credit in French 3.

8A-8B. Scientific Reading (2-2)
Prerequisite: French 2 with a grade of C or better, or three years of high school French.
Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit in French 3 or 7A-7B.

10. Conversation (2) I
Prerequisite: French 2 or three years of high school French.
Practice in the spoken language; practical vocabulary, conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: French 10 or French 3, or four years of high school French.
Continuation of French 10.

40. French Civilization (2) I
(Same course as Humanities 42)
Conducted in English. No prerequisite.
The major currents and characteristics of French culture, as expressed through the centuries in literature, art, philosophy, music, and science.

41. French Civilization (2) II
(Same course as Humanities 43)
Conducted in English. No prerequisite.
Continuation of French 40.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: French 4 and 11, with a grade of C or better.
Translation into French from moderately difficult English prose. Outside reading of modern French prose, with written reports in French monthly. Readings and oral discussions in French of various facets of French life and culture.

102A-102B. Survey Course in French Literature (3-3)
Prerequisite: French 4 with a grade of C or better.
A study of important movements, authors, and works in French literature from the Middle Ages to the present. French 10 and 11 strongly recommended for liberal arts minor.

105A-105B. Modern French Drama (3-3)
(Offered in 1964-65)
Prerequisites: French 4 and 11 with grade of C or better.
Plays of Victor Hugo, de Vigny, de Musset, Scribe, Augier, Dumas fils, Pailleron, Brieux, Hervieu, Maeterlinck, Rostand, and others read and discussed as to subject matter and technique. Outside reading and reports.

107A-107B. Eighteenth Century Literature (3-3)
(Offered in 1965-66)
Prerequisites: French 4 and 11 with grade of C or better.
The works of Montesquieu, Voltaire, Rousseau, the Encyclopédistes, as well as the theater and novel of the period. Outside reading and reports.

110A-110B. Modern French Novel (3-3)
Prerequisites: French 4 and 11 with grade of C or better.
The French novel from Victor Hugo to the present day, including such authors as Hugo, Dumas, Stendhal, Balzac, Flaubert, Loti, Anatole France, Bourget, Bordeaux, Bazin, Barrès, Romain Rolland, A. Gide, Marcel Proust, and others. Class reading, outside reading, and reports.

111A-111B. Seventeenth Century Dramatic Literature (3-3)
(Offered in 1966-67)
Prerequisites: French 4 and 11 with grade of C or better.
Reading in class of plays of Molière, Corneille, and Racine. Outside readings and lectures on the background of the seventeenth century in France.

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in German or Spanish 122.

140. French Civilization (2) I
(Same course as Humanities 142)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. French Civilization (2) II
(Same course as Humanities 143)
Conducted in English. No prerequisite.
Continuation of French 140.

150. Advanced Phonetics and Diction (3) Irregular
Prerequisites: French 1, 2, 3, 4, or equivalents, 10 and 11.
For students and teachers of French wishing to perfect their pronunciation and diction. Correct formation of French sounds in isolation and combination. Class exercises, individual drill, and use of special discs and tape recording.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in French available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. Old French (3)
Prerequisite: 18 units of upper division French.
The elements of the phonology and morphology of Old French; intensive reading and translation of representative texts.

214. The Novel in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Current movements and techniques in the novel in France from 1900 to the present, with concentration on the leading novelists of the period.

215. The Theater in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Movements and techniques in the French dramatic literature from 1900 to the present, with concentration on the leading dramatists of the period.

220. Explication de Textes (3)
Prerequisite: 18 units of upper division French.
An introduction to the analytical French approach to the detailed study of literature. Demonstrations by instructor and students. This course aims to give teachers of French a greater mastery of French language and literature.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division French.

Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division French and consent of graduate adviser and department chairman. Required of all candidates for the M.A. degree with the general secondary or junior college credential.

A study of important movements, authors, and works in French literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisites: 18 units of upper division French and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

Master's degree candidates in general secondary or junior college credential programs are expected to substitute French 294 and a comprehensive examination for the thesis.

GENERAL LANGUAGE

IN THE DIVISION OF THE HUMANITIES

Faculty assigned to teach courses in general language are drawn from the Departments of Foreign Languages and English.

Major or minor work is not offered in general language.

LOWER DIVISION COURSES

20. Latin and Greek Word Derivation (3) I, II
(Same course as English 20.)

A general and elementary course in philology. A study of Latin and Greek roots of most frequent occurrence in English, and of the English words derived from them. No prerequisite.

30. Pronunciation of French (1) I
Three hours per week for eight weeks. No prerequisite.

A course designed especially to meet the needs of singers, radio announcers, etc.

31. Pronunciation of Italian (1) I
Three hours per week for eight weeks. No prerequisite.

A course designed especially to meet the needs of singers, radio announcers, etc.

32. Pronunciation of German (1) II
Three hours per week for eight weeks. No prerequisite.

A course designed especially to meet the needs of singers, radio announcers, etc.

33. Pronunciation of Spanish (1) II
Three hours per week for eight weeks. No prerequisite.

A course designed especially to meet the needs of singers, radio announcers, etc.

UPPER DIVISION COURSES

196. General Linguistics (3) I

(Same course as English 196.)

Open only to seniors and graduate students. Recommended: Reading knowledge of Latin, French, Spanish, or German.

A study of the principles of linguistic development illustrated chiefly from the Classical, Romanic, and Germanic language groups.

197. English Linguistics (3) II

(Same course as English 197.)

Open only to seniors and graduate students who have had either English 192 or General Language 196.

The phonological, grammatical, and lexical structure of English.

199. Special Study (1-6) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

GEOGRAPHY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Emeritus Faculty: Blake, Molitor

Professors: Post, Richardson, Storm, Taylor, J.

Associate Professors: Eidemiller, Yahr (Chairman)

Assistant Professors: Cruttenden, Finch, Lewis, Vogel

Offered by the Department

Master of arts degree with a major in geography; and a master of arts degree for teaching service with a concentration in social science (geography). (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geography with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in geography. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1. Introduction to Geography: Physical Elements (3) I, II

The nature of maps, weather and climates of the world; natural vegetation; land forms and their associated soils, with reference to their climatic relationships; the seas and their coasts. Related field observations.

2. Introduction to Geography: Cultural Regions (3) I, II

Prerequisite: Geography 1 or consent of instructor.

The regional differentiation of the world by human activity; areal bases of economy and nationality. Not open to students with credit in either 12A or 12B. A maximum of six units will be allowed for Geography 2 and 112A or 112B.

3. Weather (3) I, II

Elements of weather, air masses, storms, and their geographic distribution; practical instruction in the use of weather instruments, maps, and records.

60. Economic Geography (3) I, II

Prerequisite: Geography 1 or consent of instructor.

Man's economic activities over the earth's surface. Principles of agricultural production, extractive industries, manufacturing regions, industrial location, and transportation and trade.

UPPER DIVISION COURSES

100. Climatology (3) II

Prerequisite: Geography 1 or 3, or consent of instructor.

A survey of the principal classifications of climates of the world; regional characteristics of climate; relations to soils, vegetation, and human activities.

Geography

101. Physiography (3) I
Prerequisite: Geography 1.
A study of the physiographic processes and concepts, and of selected areas illustrative of physiographic problems. Types of terrain, their origin, and their distribution over the earth.

105. Soils and Natural Vegetation (3) II
Prerequisite: Geography 1 or consent of instructor.
The soils and natural vegetation associations of the world; their distribution, classification, development, and relations to climates, landforms and economic activity.

110. Historical Geography (3) II
Prerequisite: Geography 1 or 2, or consent of instructor.
Transformation of the natural and cultural landscape with emphasis on the utilization and significance of resources. Exploration, migration, and settlement in relation to geographic phenomena.

112A-112B. Culture Worlds (3-3)
Prerequisite: Geography 1 or consent of instructor.
A study of the evolution, distinguishing cultural characteristics, and physical features of the major cultural regions of the world, with emphasis on the role man has played in the alteration of the natural landscape. This year course not open to students with credit in both 12A and 12B. A maximum of six units will be allowed for one of the following combinations of courses: Geography 2 and 112A or 112B; Geography 12A and 112B; Geography 12B and 112A. (Geography 112A-112B was formerly offered as 12A-12B.)

120. California (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The physiographic regions of California and the cultural landscapes developed by the successive cultural groups.

121. United States (3) I, II
Prerequisite: Geography 1 or consent of instructor.
The natural regions of the United States, their formation and economic and historical development.

122. Canada and Alaska (3) II
Prerequisite: Geography 1 or consent of instructor.
The physical and historical bases of Canadian and Alaskan regionalism; the economic and stategic importance of these two areas.

123. Middle America (3) II
Prerequisite: Geography 1 or consent of instructor.
The land and peoples of Mexico, Central America, and the islands of the Caribbean; a survey of the resources, economies, and trade of the region.

124. South America (3) I
Prerequisite: Geography 1 or consent of instructor.
A study of the physical regions and human geography of South America, including a review of the history of colonization and the exploitation of resources.

125. North Africa and the Near East (3) II
Prerequisite: Geography 1 or consent of instructor.
The geographic bases for the political heritage, economics and peoples of North Africa, including the Sahara, and the Near East.

126. Europe (3) I
Prerequisite: Geography 1 or consent of instructor.
The geographic bases for the political heritage, economies and peoples of Europe.

127. Soviet Union (3) I
Prerequisite: Geography 1 or consent of instructor.
Analysis of natural resources, agricultural production, industrial growth, and transportation.

128. Southern and Eastern Asia (3) II
Prerequisite: Geography 1 or consent of instructor.
The cultural regions of southern and eastern Asia, their physical environment and historical development.

129. Oceania (3) II
Prerequisite: Geography 1 or consent of instructor.
The physical geography, peoples, economies, and trade of Oceania, Australia, and New Zealand.

130. Central and Southern Africa (3) I
Prerequisite: Geography 1 or consent of instructor.
A regional geography of Africa south of the Sahara; the physical geographic base for the peoples and their economic activities.

150. Political Geography (3) I
A study of geography as it relates to the strength of nations and international relations.

151. Economic Geography: Primary Production (3) I
Prerequisite: Geography 1 or 2 or consent of instructor.
The geography of agricultural production and the extractive industries in relation to world commerce.

152. Industrial Geography (3) II
Prerequisite: Geography 1 or 2 or consent of instructor.
Principles of industrial location, with emphasis on the distribution of the world's major manufacturing regions; transportation and world trade.

153. Conservation of Natural Resources (3) I, II
Prerequisite: Geography 1 or consent of instructor.
Nature and extent of mineral, soil, water, forest, and wildlife resources and their conservation, with particular emphasis on the United States against a general background of world resources. Conservation philosophies and practices and their geographic bases.

155. Urban Geography (3) I
Prerequisite: Six units of geography or related experience.
Description and analysis of geographic principles and characteristics related to the distribution, function, structure, and regional setting of urban centers, with discussions of the growth, development and problems of modern cities. Field reconnaissance in local urban areas.

166. Honors Course (Credits to be arranged) I, II
Refer to the Honors Program.

180. Field Geography (3) II
Prerequisites: Junior, senior or graduate standing and the completion of at least 12 units in geography, including Geography 1 and 2, or 112A and 112B, and consent of instructor.
Directed fieldwork in physical and cultural geography.

181A-181B. Maps and Graphic Methods (3-3)
Prerequisite: Geography 181A, or consent of instructor, is prerequisite to 181B.
The use and evaluation of maps and graphic aids in the teaching of geography and other fields in the physical and social sciences. Practice in reproducing maps and graphs.

182. Use and Interpretation of Aerial Photographs (3) II
Two lectures and three hours of laboratory.
Prerequisite: Geography 1 and consent of instructor.
The planning of photo reconnaissance, correction of photo errors in the construction of base maps, and principles of stereoscopy. Emphasis on the use of standard photogrammetric instruments and the interpretation of aerial photographs.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: At least 15 units of A or B work in geography and consent of instructor.

GRADUATE COURSES

210. History of Geography (3)
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

220. Seminar in Regional Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of a major world region, such as South America, Southeast Asia and Northern Europe. May be repeated once with new content.

250. Seminar in Systematic Geography (3)
Prerequisite: Approval of departmental advisory committee.
Intensive study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. May be repeated once with new content.

280. Techniques of Field Research (3)
Prerequisites: Geography 180 and approval of departmental advisory committee.
Detailed and reconnaissance field work including classification of natural and cultural features and preparation of geographical reports and maps based on field data. May be repeated once with new content.

295. Geographic Research and Techniques of Presentation (3)
Prerequisite: Approval of departmental advisory committee.
Seminar in the use of research materials in the different aspects of geography and the effective presentation of research findings in written and oral form.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

GEOLOGY

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Roberts, Thomas, B. (Chairman)
Associate Professors: Brooks, Gastil
Assistant Professors: Allison, Bassett, Berry, Threet

Offered by the Department

Master of science degree in geology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in geology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in geology with the A.B. or B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in geology. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1A. Physical (4) I

Three lectures and three hours of laboratory with related field study during the semester.

The composition, origin, and distribution of earth materials, and their modification through mechanical and chemical processes. Not open to students with credit for Geology 2.

1B. Historical (4) II

Three lectures and three hours of laboratory. Arrangement for field study during the semester.

Prerequisite: Geology 1A, or 2 and 3.

Theories of earth origin, and the evolutionary history of the earth as traced through rock and fossil records. Consideration of the Paleontologic Sequence.

2. General Geology (3) I, II

No prerequisites.

Earth materials and processes, the development of land forms, and a brief consideration of the history of the earth. Open to all students except those with previous credit in geology.

3. General Geology Laboratory (1) I, II

Three hours of laboratory.

Prerequisite: Credit or concurrent registration in Geology 2.

Recognition of common earth features and materials with experience in both field and map relationships. Designed to accompany and augment Geology 2. Not open to students with previous laboratory credit in geology.

21. Mineralogy (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: High school chemistry, or credit or concurrent registration in college chemistry.

Practice in the determination of the common minerals; their geologic environment, utilization and economic significance.

24. Petrology (3) I

Two lectures and three hours of laboratory.

Prerequisites: Geology 1A, or 2 and 3, and credit or concurrent registration in Geology 21.

The origin, occurrence, identification, and classification of rocks and minerals with emphasis on hand specimen characteristics.

53. General Geology for Engineers (1) II

One three-hour laboratory or field project per week.

Prerequisite: Engineering 2 or 24.

Earth materials, geologic processes, and methods of geologic interpretation of particular concern to the engineer. Open only to students majoring in engineering. Not open to students with credit in Geology 3.

UPPER DIVISION COURSES

100. Structural Geology (3) I

Two lectures and three hours of laboratory per week with occasional field trips.

Prerequisites: Geology 1A and 1B.

Structural features of the earth, both deformational and primary. Mechanical principles, causes of folding and faulting, graphic solutions and analyses.

102. Geology of California (3) II

(Offered in 1964-65 and alternate years)

Prerequisites: Geology 1A and 1B.

Directed reading and group discussion of California geologic literature. Designed to acquaint students with the important structural, stratigraphic, and geomorphic units of the state and with the great variety of source materials hereon.

104. Geomorphology (3) II
(Offered in 1963-64 and alternate years)
Prerequisite: Geology 1B.
Development and classification of land forms with consideration of processes involved.

106. Paleontology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Geology 1B and Biology 4, or their equivalents, or consent of instructor.
Principles and methods, exemplified by a study of the morphology, classification, habit, and geologic significance of fossil invertebrates.

107. Principles of Stratigraphy (3) II
Two lectures and three hours of laboratory.
Prerequisites: Geology 24 and 106.
Procedures used in analysis, correlation, and classification of stratigraphic units. The chronologic significance of the important physical and biological criteria.

108A. Field Geology (4) II
One lecture per week and 12 Saturday field sessions in the local area.
Prerequisites: Geology 24 and 100, and Engineering 2.
Techniques and methods of geologic observation, interpretation, and field mapping.

108B. Field Geology (4) I
Prerequisite: Geology 108A.
Geologic investigation of an assigned area with preparation of an individual report and a geologic map.

110. Introduction to Geophysics (3) I
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 22 or 50, Physics 2B and 3B or equivalents, and Geology 100 or concurrent registration therein.
Physics of the earth and its application to prospecting for oil, gas, and mineral deposits.

112. Advanced Geophysics (3) II
(Offered in 1964-65 and alternate years)
Two lectures and three hours of laboratory.
Prerequisites: Mathematics 52, Physics 103 and 110, and Geology 110.
Theoretical principles underlying the physics of the earth and their application to the design and the operation of geophysical instruments, and to the interpretation of the geophysical records.

116. Micropaleontology (3) II
(Offered in 1963-64 and alternate years)
Two lectures and three hours of laboratory.
Prerequisite: Geology 106.
A study of the morphology, classification and geologic significance of the various microfossils.

120. Ore Deposits (3) I
(Offered in 1964-65 and alternate years)
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic relations, origin, distribution, and economics of metallic and nonmetallic mineral deposits.

121. Petroleum Geology (3) I
(Offered in 1963-64 and alternate years)
Prerequisites: Completion or concurrent registration in Geology 24 and 100.
Geologic occurrence of petroleum and the application of geologic principles in exploration and production.

124. Optical Mineralogy (3) I

Two lectures and three hours of laboratory.

Prerequisite: Geology 21.

Theory and use of the polarizing microscope for determining optical properties of minerals as an aid to their identification.

125. Petrography (4) II

Two lectures and six hours of laboratory.

Prerequisite: Geology 124.

A study of rocks with the polarizing microscope; identification of mineral constituents; interpretation of textures; classification of rocks; problems of genesis.

166. Honors Course (Credit to be arranged) I, II

Special work in any of several phases of geologic science for students of demonstrated ability. Refer to the Honors Program.

198. Senior Report (2) I, II

Six hours of laboratory and discussions.

Prerequisite: Geology 108B.

Individual research project, involving field work in a selected field of geology, with oral reports of progress to the class and a final oral and written report of work accomplished. May be repeated to a total of four units.

199. Special Study (1-4) I, II

Individual study in field, library, laboratory, or museum work. Four units maximum credit.

Prerequisites: Acceptable grade average in at least 12 upper division units within the major and consent of staff.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced geology. May be repeated with new subject matter for additional credit.

210. Advanced Petrology and Mineralogy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 125.

Modern theoretical petrology with emphasis on applications to igneous and metamorphic rocks. X-ray, universal stage, mineralography, and other laboratory techniques and their application to geologic problems.

220. Biostratigraphy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 107.

Stratigraphic and geochronologic synthesis of geological events and their relationship to the temporal and spatial distribution of life forms. Laboratory analysis of biological data applied to stratigraphic problems.

230. Sedimentology (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 124.

Classification, distribution, and origin of sedimentary deposits and the theory of their interpretation. Mechanical, chemical, and optical analysis of detrital and chemical sediments and sedimentary rocks and their depositional structures.

240. Regional Tectonics (3)

Prerequisite: Geology 100.

A consideration of topics on continental origin, ultimate orogenic force, mechanics of earth deformation and geosynclinal theory, with a survey of classic geologic provinces, and individual projects utilizing techniques of regional synthesis.

298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a thesis for the master's degree.

GERMAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus Faculty: Walker
Professor: Wolf
Associate Professor: Lawson
Assistant Professors: Oksenholt, Paulin

Offered by the Department of Foreign Languages

Major in German with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in German. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated language work.

LOWER DIVISION COURSES

1. Elementary (4) I
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on German culture and civilization, minimum essentials of grammar.

2. Elementary (4) II
Four lectures and one hour of laboratory.
Prerequisite: German 1 or two years of high school German.
Continuation of German 1.

3. Intermediate (4) I
Prerequisite: German 2 or three years of high school German.
A practical application of the fundamental principles of grammar. Reading in German of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports. Not open to students with credit in German 7A-7B or 8A-8B.

4. Intermediate (4) II
Prerequisite: German 3 or four years of high school German.
Continuation of German 3.

7A-7B. Intensive Reading Course in German (2-2)
Prerequisites: German 1 and 2 or three years of high school German.
Intensive reading of material from the humanities and social sciences selected for the purpose of developing reading skills in German. Open only to students preparing for departmental reading examinations. Not open to students with credit in German 3.

8A-8B. Scientific Reading (2-2)

Prerequisite: German 2 with a grade of C or better, or three years of high school German.

Readings taken from the fields of chemistry, physics, medicine, zoology, biology, etc. Outside reading of books and periodicals, with written reports. Not open to students with credit in German 3 or 7A-7B.

10. Conversation (2) I

Prerequisite: German 2 or three years of high school German.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II

Prerequisite: German 10 or German 3, or four years of high school German.

Continuation of German 10.

40. German Civilization (2) I

(Same course as Humanities 44)

Conducted in English. No prerequisite.

The major currents and characteristics of German culture, as expressed through the centuries in literature, art, philosophy, music, and science.

41. German Civilization (2) II

(Same course as Humanities 45)

Conducted in English. No prerequisite.

Continuation of German 40.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)

Prerequisites: German 4 and 11, with a grade of C or better.

Translation into German of moderately difficult English prose. Free composition in German, written and oral. Outside reading of modern German plays and prose, discussions in German. Oral and written practice in conversational German.

102A-102B. Survey Course in German Literature (3-3)

Prerequisite: German 4 with a grade of C or better.

A study of important movements, authors, and works in German literature from the Middle Ages to the present.

103A-103B. German Literature of the Eighteenth Century (3-3)

(Offered in 1965-66)

Prerequisites: German 4 and 11 with a grade of C or better.

An introduction to the literature of the German Enlightenment, the "Storm and Stress," the Classical Age, and the beginnings of the Romantic School. Outside readings and reports.

105A-105B. German Literature of the 19th Century (3-3)

Prerequisites: German 4 and 11 with grade of C or better.

An introduction to the literature of German Romanticism, Young Germany, Realism, and Naturalism. Outside readings and reports.

110A-110B. Contemporary German Literature (3-3)

(Offered in 1964-65.)

Prerequisites: German 4 and 11 with grade of C or better.

An introduction to the main developments in German literature from Neo-Romanticism to the present. Outside readings and reports.

122. The Foreign Language Laboratory (2) I

Conducted in English.

Prerequisite: Admission to teacher education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French or Spanish 122.

140. German Civilization (2) I
(Same course as Humanities 144)
Conducted in English. No prerequisite.
An advanced course in German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. German Civilization (2) II
(Same course as Humanities 145)
Conducted in English. No prerequisite.
Continuation of German 140.

142. The Golden Age of German Literature (3) I, II
(Same course as Comparative Literature 142)
Masterpieces of German literature from the Eighteenth and early Nineteenth Centuries.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in German available in any given semester.

GRADUATE COURSES

201. History of the German Language (3)
Prerequisite: 18 units of upper division German.
The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.

204. Contemporary German Prose Fiction (3)
Prerequisite: 18 units of upper division German.
Studies in the 20th century German novel or short story.

205. German Lyric Poetry from Goethe to Rilke (3)
Prerequisite: 18 units of upper division German.
The major German lyric poets from the end of the 18th century to the beginning of the 20th century.

206. The German Drama of the 19th Century (3)
Prerequisite: 18 units of upper division German.
Representative works of German dramatic literature from Kleist to Hauptmann.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division German.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division German and consent of graduate adviser and department chairman.
A study of important movements, authors, and works in German literature. Designed to supplement the reading done in previous courses.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisites: 18 units of upper division German and consent of staff; to be arranged with department chairman and instructor.

HEALTH EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Professors: Kitzinger, Lauritsen
Associate Professors: Grawunder (Chairman), Harper
Assistant Professors: Burgess, McTaggert, Mileff
Lecturers: Escamilla, Huff

Offered by the Department

Master of arts degree for teaching service with a concentration in health education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in health education with the B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in health education. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

21. Principles of Healthful Living (2) I, II
An application of modern knowledge to the development of understandings, attitudes, and practices essential to healthful living. A required general education course. Fulfills statutory requirement in public safety.

65. Community Health (3) I, II
Community health problems; the role of the citizen, of the public, and of community health agencies in promoting and protecting the health of the community.

90. Physiology of Reproduction (1) I, II
A series of lectures and discussions dealing with normal and abnormal physiology and anatomy of reproduction; facts and frauds in sex hygiene, and related topics.

UPPER DIVISION COURSES

145. Safety Education and Accident Prevention (3) I, II
Highway safety, the fundamentals of safety programs and techniques in home, school and industry. Partially satifies the requirements for state credential in driver education.

150. Health Education for Elementary Teachers (2) I, II
The teacher's function in the different aspects of the elementary school health program, with emphasis upon the planning and presentation of instructional materials and upon community resources and relationships. Not open to students with credit in Health Education 151.

151. Health Education for Secondary Teachers (2) I, II
A study of the health status of adolescents and of the teacher's function in the secondary school health program. Emphasis is placed upon statutory requirements in stimulants and narcotics and upon safety and accident prevention. Not open to students with credit in Health Education 150.

152. School Health Instruction Programs (3) I
The construction of the health education program, including objectives, scope and sequence of instruction, teaching methods, source materials, evaluation procedures, and instructional units.

153. Administration of the School Health Program (3) II
Administrative responsibilities and procedures in organizing and conducting the school health program. Principles, policies, and practices involved in instruction, service, environment, and community relationships.

154. Workshop in Health Education (2) Summer
For elementary and secondary administrators, school nurses, and teachers. The workshop provides opportunities for participants to work together toward the improvement of the total school health program in such areas as health instruction, health services, health environment, and community health. May be taken three times for credit.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

168. Institute on Current Health Issues (1) I, II, Summer
A critical appraisal and analysis of selected contemporary health issues. May be taken three times for credit.

175. Health in Later Maturity (3) I
An approach to the conservation of human resources, with particular emphasis on understandings, attitudes, and practices related to health in later maturity. Designed for those with a personal or professional interest in the field.

181. Health and Medical Care (3) II
Prerequisite: Senior or graduate standing with a major or minor in health education or closely related areas.

A study of health values, concepts, and attitudes; health products and facilities; hospital care and hospitalization plans; governmental health controls; economic and cultural influences upon health and medical care; professional contributions, relationships, and careers; national and international health programs. Not open to students with credit in Sociology 121.

185. Critical Analysis of Professional Literature (3) I, II
Investigation and study of selected literature in the field which has important bearing on health, physical education, and recreation programs in the school and community. Evaluation of literature content on basis of specific critera.

190. Introduction to Public Health (3) I
Philosophy, development, organization, administration, and legal aspects of public health in the United States. Disease prevention and control, health education, and the other functions and activities of official health departments, voluntary agencies, private physicians and others engaged in professional health work.

191. Supervised Field Experience (1-3) I, II
Prerequisite: Senior standing and consent of the chairman of the department.
Supervised practical experience in local health agencies.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the special study adviser.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I
(Same course as Physical Education 200)

A study of tests and measurements in the profession with practice in their use, construction and interpretation of results.

202. Problems in Health Education (3) (Alternate Years)
Current problems in Health Education, studied through a review of the literature, discussion of trends, observation of school situations, together with the analysis and evaluation of actual problems. Written reports required.

205. Curriculum in Physical Education and Health Education (3)
(Same course as Physical Education 205)

Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation.

210. Seminar (3) I, II
Prerequisite: Major or minor in health education, physical education, or a closely related area, or consent of instructor.

Seminars are offered in the following areas of health education. None of the fields may be repeated for credit.

A. Stimulants and depressants
B. Communicable and noncommunicable disease.
C. Dental health

298. Special Study (1-6)
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

Individual study. Six units maximum credit.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

HISTORY

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus Faculty: Leonard

Professors: Johnson, A., Nasatir, Ragen, Ridout, Rohfleisch, Webb

Associate Professors: Hanchett, Merrill (Chairman), Pincetl, Rader, Ridge, Wineman

Assistant Professors: Harris, B., Kutler, Norman, Ruetten

Lecturers: Du Fault, Johnson, H.

Offered by the Department

Master of arts degree with a major in history; and a master of arts degree for teaching service with a concentration in history. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in history with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in history. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U. S. history, U. S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) History 17A and 17B or 172A and 172B.
(2) History 8A and 8B plus an approved test or course on the U. S. Constitution.
(3) History 176A and 176B, or 179A and 179B, or 181A and 181B plus approved tests or courses on (a) the U. S. Constitution and (b) California government.
(4) History 189 plus approved tests or courses on (a) U. S. history and (b) the U. S. Constitution.
(5) History 177A and 177B plus an approved test or course on California government.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

LOWER DIVISION COURSES

4A-4B. Western Civilization (3-3)
Prerequisite: History 4A, or consent of instructor, is prerequisite to History 4B.
European institutions, culture, and thought from ancient times to the present.

8A-8B. The Americas (3-3)
Survey of the history of the western hemisphere from its discovery to the present time. This year course meets the graduation requirements in American history, institutions and ideals. 8B meets the graduation requirement in California State and local government.

17A-17B. American Civilization (3-3)
Prerequisite: History 17A is prerequisite to History 17B.
Survey of the political and social development of the United States, with emphasis upon the rise of American civilization and ideals. This year course meets the graduation requirement in American history, institutions and ideals. The first semester course, 17A, also meets the requirement in U.S. Constitution; and the second semester course, 17B, meets the requirement in California state and local government. Ordinarily not open to students with credit for Political Science 71A-71B. History 17A-17B may be taken by such students with the consent of the chairman of the History Department.

UPPER DIVISION COURSES

111A-111B. Ancient History (3-3)
Fall semester: Greece to the Roman Conquest.
Spring semester: Rome to the 5th century A.D.

121A-121B. Europe in the Middle Ages (3-3)
Prerequisite: History 121A, or consent of instructor, is prerequisite to History 121B.
European social, cultural, and political developments from the fall of Rome to the Renaissance.

131A-131B. Renaissance and Reformation (3-3)
Personalities and events connected with the social, political, cultural, economic and religious change between 1300 and 1600. Not open to students with credit for History 132-S.

132-S. Culture of the Renaissance (3) Summer
Development of art, literature, philosophy and social life between 1300 and 1600. Not open to students with credit for History 131A-131B.

141A-141B. Europe in the 17th and 18th Centuries (3-3)
Semester I: 17th Century Europe. Semester II: 18th Century Europe, to the French Revolution.

142A. The French Revolution and Napoleonic Era (3) I
France on the eve of the Revolution; the Great Revolution, 1789-1799, the Napoleonic Era.

142B. Modern France (3) II
The development of France since 1815.

143A-143B. Intellectual History of Europe in the 19th Century (3-3)
Prerequisite: History 4A-4B, or equivalent knowledge of European history; History 143A is prerequisite to 143B.
An analysis of the dominant ideas of the 19th century. Course work is based primarily upon contemporary source materials. (Formerly entitled: Europe in the 17th and 18th Centuries.)

144A-144B. Europe in the 20th Century (3-3)
Prerequisite: History 144A, or consent of instructor, is prerequisite to History 144B.
Political and social developments from 1870 to the present.

146A-146B. Germany and Central Europe (3-3)
Prerequisite: History 4A-4B, or equivalent knowledge of European history.
The political, social, and cultural record of the Germanic peoples of Northern and Central Europe from Tacitus to the present.

147A-147B. Russia and the Soviet Union (3-3)
Political, social, and economic development of Russia in Europe and Asia from the earliest times to the present. Second semester: Emphasis on the 20th century. (Formerly entitled: Expansion of Russia.)

151A-151B. England (3-3)
Prerequisite: History 151A, or consent of instructor, is prerequisite to History 151B.
Political, constitutional, and social developments since the Norman Conquest. Recommended for prelegal students and majors in English.

156. The Byzantine Empire and Its Successors (3)
History and civilization of the traditional Near East from the founding of Constantinople in 330 A.D. to the present day. The latter part of the course will stress the decline of the Ottoman Turks and the establishment of modern national states in the region.

157. The Arab States, Israel, and Iran (3)
History and civilization of the Arab World and the Middle East from the rise of Islam in the 7th century to the present day. The expansion of the Arabs, the institutions of Islam, the penetration of Western ideas, the development of nationalism, and the interests and foreign policy of America in this strategic area will be stressed.

158A-158B. Africa (3-3)
Semester I: The historical development of North Africa; the growth and decline of imperialism, especially in French North Africa. Semester II: The history of Africa south of the Sahara. (Formerly entitled: Africa and the Near East.)

160A-160B. Latin America (3-3)
Semester I: Colonial Period to approximately 1825. Semester II: Republican Latin America.

161. Mexico (3) I
Prerequisite: History 8A-8B or 160A-160B or consent of instructor.
An intensive study of colonial and modern Mexico with special emphasis on the 20th century. (Formerly entitled: Mexico and Caribbean Countries.)

162. Argentina, Brazil, and Chile (3) II
Prerequisite: History 8A-8B or 160A-160B or consent of instructor.
An intensive study of the three leading Hispanic Powers of South America. (Formerly entitled: South America Since Independence.)

165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)
Prerequisites: At least nine units in Latin American History and some acquaintance with the Spanish language.
Designed for students in the Latin American Studies program, foreign trade, and foreign service. (Formerly entitled: Social and Intellectual History of Latin America.)

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

171A-171B. Rise of the American Nation (3-3)
Prerequisite: History 171A, or consent of instructor, is prerequisite to History 171B.
A topical approach to the Colonial experience. The first semester stresses the European background and problems of transplanting Old World Culture to the New World. The second semester focuses attention on contributions of the Colonial experience in literature, education, religion.

172A-172B. Development of the Federal Union (3-3)
Prerequisite: History 172A, or consent of instructor, is prerequisite to History 172B.
Political, cultural, social and intellectual aspects of the Confederation and early national period; the Convention of 1787 and establishment of the Constitution; the administrations of Washington through John Quincy Adams. This year-course meets the graduation requirements in American history, institutions and ideals; 172A meets the requirement in U. S. Constitution; and 172B includes materials which meet the requirements in California state and local government.

173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)
Prerequisite: History 173A, or consent of instructor, is prerequisite to History 173B.
Lectures and readings on Jacksonian democracy, territorial expansion, the Mexican War, the slavery controversy, the Civil War and Reconstruction.

174. Emergence of the United States as a World Power (3) I, II
Postwar reconstruction and economic developments to the close of the nineteenth century.

175A-175B. The United States in the 20th Century (3-3)
The United States as a world power; social and economic problems posed by the machine age; political action and adjustment, actual and proposed, intended as solutions for these problems.

176A-176B. American Foreign Policy (3-3)
Lectures and readings in the field of American foreign relations since 1776, with special emphasis, in the second semester, upon affairs since 1900. A general survey course. This year-course meets the graduation requirement in American history, institutions and ideals.

177A-177B. Constitutional History of the United States (3-3)
American constitutional history since the establishment of the federal government. This year course meets the graduation requirement in U.S. history and the U.S. Constitution.

179A-179B. Intellectual History of the American People (3-3)
A study of the ebb and flow of ideas in the United States since the founding of the English colonies, with special attention devoted to social and political thought. This year course meets the graduation requirement in American history, institutions and ideals.

181A-181B. The Westward Movement (3-3)
The American frontier: Expansion, exploration, settlement and building of the new states, with emphasis upon frontier problems of defense, communications, finance, etc.; the development of cultural institutions. A critical examination of the causes, effects and results of the frontier experiences of the American people. This year course meets the graduation requirement in American history, institutions and ideals.

182. The Spanish Borderlands and the Southwest to 1821 (3) I
Development and colonization of the Spanish southwest; the growth and influence of Spanish institutions on American culture in this area.

183. The Modern Southwest (3) II
The development and problems of expansion, water, industry, transportation, immigration, culture, and agriculture in the region of semi-aridity.

189. California (3) I, II
The economic, social, intellectual, and political development of California from the earliest times. Emphasis will be on the founding of California, international struggles for California; American conquest and Gold Rush Era; development of California as a state. This course meets the graduation requirement in California state and local government.

190. Southeast Asia (3) I

The countries between India and China, as well as neighboring island areas from earliest times to the present. Special attention will be given to the penetration of Western ideas and colonialism and the development of nationalism in this area.

191A-191B. The Far East (3-3)

Particular, but not exclusive, emphasis on Asian-Western relations. Semester I: Through the 19th century. Semester II: The 20th century.

193. China (3) I

A survey of Chinese history and institutions from antiquity to the present.

194. Japan (3) II

A general survey of the political, economic and social development from the foundation of the empire to contemporary times. Special attention will be given to religions, philosophy, literature, and the arts.

196. The Indian Sub-Continent (3) II

The Indian peninsula and sub-continent from earliest times to the present. Special attention will be given to the independence movement, the partition of India and Pakistan, and the important role of these two nations in world affairs.

197. Introduction to Great Historians and Historical Literature (3) I, II

Lectures and readings in the history of history and the works of major historians. Open to all upper division students; especially recommended for history and social science majors.

198. Introduction to Historical Method (2) I, II

Prerequisite: Senior standing.

Required of history majors and recommended for students in the social science major.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of department chairman and instructor.

GRADUATE COURSES

NOTE: All graduate courses have a prerequisite of 12 units of upper division history, including specific prerequisites in history, or consent of the instructor.

201. Historical Method (3)

Required of all applicants for advanced degrees in history. Open to others with consent of instructor.

General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history.

202. Seminar in Historiography (3)

Prerequisite: History 197 or consent of instructor.

A critical study of the works of major historians, their philosophies, and the schools of scholarship associated with their work.

251A-251B. Seminar in English History (3-3)

Prerequisite: Consent of instructor. History 251A is prerequisite to 251B.

Directed research in selected aspects of English history.

270A-270B. Seminar in American History (3-3)

Prerequisite: Consent of instructor. History 270A is prerequisite to 270B.

An introduction to intensive investigation of various phases of American history.

276A-276B. Seminar in Diplomatic History (3-3)

Prerequisite: Consent of instructor. History 276A is prerequisite to 276B.

Selected topics in recent diplomatic relations.

281A-281B. Seminar in the History of the West and California (3-3)

Prerequisite: Consent of instructor. History 281A is prerequisite to 281B.

Directed research in various topics in the History of the West and California.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

HOME ECONOMICS

IN THE DIVISION OF THE FINE ARTS

Faculty

Associate Professors: Cannon, Comin, Dorris, Thomas, A. (Chairman)
Assistant Professors: Martin, Scheier
Lecturer: Bernard

Offered by the Department

Major in home economics with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in home economics. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

1. General Home Arts (3) I, II
Three lectures. No prerequisite.
Consideration of necessary preparation for marriage with emphasis on a stable, happy democratic family life; family budgets and money management; finding a home to buy, build or rent; child care, proper training and guidance; home safety. Open to men and women.

2. Orientation to Home Economics as a Profession (1) I
One lecture. No prerequisite.
Introduction to the opportunities and requirements in various professional fields for home economists.

3. Food and Nutrition (3) I, II
One lecture and six hours of laboratory. No prerequisite.
Selection, purchase, and serving of meals with a consideration of nutritional needs of the family groups, food habits, and social customs; management problems.

4A. General Nutrition (2) I, II
Two lectures. No prerequisite.
Practical problems of nutrition, including food requirements, food selection, and food habits. The relation of nutrition to health. Open to both men and women, except home economics majors. Maximum credit in Home Economics 3 and 4A is four units.

4B. Nutrition Laboratory (1) II
Three hours of laboratory.
Prerequisite: Limited to students in the nursing program.
Principles of nutrition applied to food preparation, meal planning, and special diets.

14-S. Workshop for School Lunch Personnel (1) Summer

Open to school lunch personnel only.

The following areas are included:

A. Nutrition for School Lunches.
B. Beginning Meal Planning.
C. Food Purchasing.
D. Sanitation and Safety.
E. Work Simplification and Personnel Management.
F. Advanced Menu Planning.
G. Record Keeping and Cost Analysis.

No area may be repeated for credit, but credit may be earned in two areas concurrently. Maximum credit seven units. May not be used as part of a major or minor in home economics or homemaking education.

15. Clothing and Textiles (3) I, II

Six hours activity. No prerequisite.

Commercial patterns and their adaptation; fitting and construction, primarily with cotton material. Selection and care of textiles. Wardrobe planning and buying practices. Good grooming.

30. Family Housing (2) II

One lecture and three hours of laboratory.

Prerequisite: Art 6A.

Choosing and furnishing a home from the standpoint of economy, comfort, and beauty.

35. Courtship and Marriage (3) I, II

Emphasizes preparation for successful marital adjustment by presenting materials that will help students to solve their own courtship, marriage, and family problems. Not open to students with credit in Sociology 35 or other course in marriage and the family.

40. Budgeting the Family Income (2) I, II

Two lectures. No prerequisite.

Family buying problems; finance planning, accounting; consumer credit, investments and control of property.

43. Household Equipment (2) I, II

Three hours activity.

Prerequisite: Physics 5.

Selection, methods of operation, and care of household appliances. Testing of equipment for safety, efficiency, and cost of operation. Efficient kitchen arrangement.

70. Children in the Home (2) I, II

Two lectures and one hour of observation. No prerequisite.

Development during the prenatal period, first 10 years. Nutrition, physical development, and family influences on the young child.

UPPER DIVISION COURSES

100. Advanced Foods (3) I, II

One lecture and six hours of laboratory.

Prerequisites: Home Economics 3 and Chemistry 2B.

Fundamentals and practices of scientific food preparation. Development of standards in food preparation, meal planning, and service.

101. Family Meals (3) I

Six hours activity. No prerequisite.

Planning, preparing, and serving of attractive, well-balanced meals for different income levels and for various occasions. Not open to home economics majors.

102. Diet Therapy (3) II

Principles of nutrition and dietetics in normal and modified diets as related to the individual and the family. (Formerly entitled: Advanced Nutrition and Dietetics.)

103. Quantity Cookery (3) I

One lecture and six hours of laboratory.

Prerequisites: Home Economics 100 and Business Administration 1A.

Application of basic principles to quantity foods, including experiences in planning, purchasing, storage, preparation, serving and cost accounting for institutional food service. Laboratory experience is provided in the campus cafeteria, industrial food services and hospitals.

104. Institutional Food Organization and Management (3) II

Two lectures and three hours of laboratory.

Prerequisites: Home Economics 103.

Study of problems involved in the organization of food service units, problems of administration, cost of food service, specifications, operation and care of equipment for institutions, and routing of work. Special projects and field trips.

105. Experimental Foods (3) Irregular

One lecture and six hours of laboratory.

Prerequisite: Home Economics 100.

Physical and chemical tests applied to problems in processing and preparation of food. Studies relate to protein foods; batters, doughs and sugar cookery; emulsions, fats and oils; and developments in food preservation.

115. Advanced Clothing (3) I, II

Six hours activity.

Prerequisite: Home Economics 15.

Fitting and construction processes applied to wool, silk, and synthetics, emphasizing fundamental principles of handling.

116. Advanced Clothing Design (3) II

Six hours activity.

Prerequisite: Home Economics 115.

Principles of tailoring; planning and construction of coats and suits.

117. Clothing Selection (3) I

Three lectures. No prerequisite.

Appropriate clothing for the individual and the family. Basic art principles, fashion trends, history of costume, buying practices; current legislation in textiles and clothing.

118. Flat Pattern Design (3) Irregular

Six hours activity.

Prerequisites: Home Economics 115 and Art 6A.

Problems involving principles and techniques of flat pattern construction. Development of basic sloper for purpose of interpreting new designs. Investigation of sources of inspiration and their relationship to significant trend in design.

119. Textile Analysis and Testing (3) Irregular

Six hours activity.

Prerequisites: Home Economics 15 and Chemistry 2B.

Analysis based on physical and chemical tests for quality differences due to variation in fibers, content, structure, and finishes and their suitability for specified uses.

131. Home Furnishing Laboratory (2) II

One lecture and three hours of laboratory.

Prerequisite: Home Economics 15.

Simple upholstering techniques; finishing furniture and interior woodwork. Student supplies his own tools, furniture, and fabrics.

143. Household Equipment and Processes (3) II

Six hours activity.

Prerequisites: Home Economics 43 and Physics 5.

Study and laboratory experience to acquaint students with current research findings in relation to equipment and household supplies. Emphasis placed upon characteristics and composition of household materials, use and care.

150. Home Management (3) II

Open to both men and women, but not open to home economics majors.

Efficient management of the home, family co-operation, establishment of goals, and productive use of money, time and energy. Not open to students with credit in Home Economics 151, Management in Family Living.

151. Management in Family Living (3) I, II

Prerequisite: Home Economics 40. Open only to home economics majors.

Scope and meaning of management in the home, recognition and use of resources available; emphasis on time and energy; adaptation of work simplification techniques for use in studies of activities in home and in home economics laboratories; family health. May not be taken by students who have previously received credit for Home Economics 150.

152. Home Management Laboratory (3) I, II

Five weeks' residence in a family-size unit.

Prerequisites: Home Economics 100 and 151; and written request made to department chairman one year prior to enrollment.

Practical applications and evaluative experience in home management and family living.

160. Merchandise Analysis (3) II

(Same course as Business Administration 160)

Three lectures. No prerequisite.

Characteristics, merits, limitations, care, and selling points of the more important textile and nontextile products. Stress on manufacturing processes as they affect consumer demands. Not open to home economics majors.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

170. Child Development Laboratory (2) I, II

One lecture and discussion and two hours of participation.

Prerequisite: Home Economics 70 or consent of instructor.

Learning to meet the developmental needs of the young child; techniques and procedures of guiding the child in the home and at school; directed participation in the Child Study Laboratory.

171. Advanced Child Study (3) II

Prerequisites: Psychology 1 and Home Economics 70, or equivalents.

Readings and interpretations of scientific literature which contribute to an understanding of child behavior. An advanced analysis of physical, social, and psychological factors which determine the direction of human development.

175. The Nursery School Program (3) I

Prerequisite: Home Economics 70 or consent of instructor.

An analysis of the types of programs for the Nursery School with consideration of methods and materials evaluated in terms of child development.

178. Methods and Materials in Parent Education (3) II

Prerequisite: Consent of instructor.

An investigation of philosophy, curriculum instruction, current trends, and issues in the teaching of child guidance to parents.

179. Problems of Family Living (2) I

Prerequisites: Psychology 1, Home Economics 35 and 70, or equivalents.

Dynamics of family living; attitudes, practices, social and psychological interaction, and family life patterns in different cultures, social classes and ethnic purposes.

180. Food Demonstration Techniques (1) II

Two hours activity.

Prerequisite: Nine units in home economics courses.

Organizing materials and acquiring techniques for demonstrations; observation and evaluation of professional demonstrations.

181. Materials and Techniques for Teaching Home Economics (2) II
Two hours.
Prerequisite: Education 121C or concurrent registration.
Development and use of audio-visual and other instructional materials.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the instructor.

GRADUATE COURSES

200. Seminar: Foods and Nutrition (3)
Prerequisites: Home Economics 100, 105, and Chemistry 3, or their equivalents.
An intensive study of research in technological advances in the fields of foods and nutrition with emphasis on professional organizations and ethical procedures. (Formerly Home Economics 200A.)

215. Seminar: Clothing and Textiles (3)
Prerequisites: Home Economics 119 and consent of instructor.
Investigation and report of specific problems in textiles and clothing. Controlled laboratory methods used. Individual research emphasized. (Formerly Home Economics 200C.)

230. Seminar: Home Management and Family Economics (3)
Prerequisites: Home Economics 40, 151, and 152.
A study of recent research and findings in the area of home management and/or family finance. Students develop extensive individual projects. (Formerly Home Economics 200B.)

270. Seminar: Child Development and Guidance (3)
Prerequisite: Consent of instructor.
Emphasis on personality theories and on research and clinical findings relevant to a systematic study of human development and the guidance of children. (Formerly Home Economics 200E.)

274. Seminar: Marriage Adjustment (3)
Prerequisite: Home Economics 179.
Individual study, seminar reports, and group discussions of selected topics in marriage adjustment. (Formerly Home Economics 200F.)

281. Seminar: Home Economics Education (3)
Prerequisites: 18 units in home economics and consent of instructor.
The study and evaluation of home economics research and philosophical principles which have implications for the secondary homemaking teacher. (Formerly Home Economics 200D.)

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

HUMANITIES

IN THE DIVISION OF THE HUMANITIES

Faculty

Faculty assigned to teach courses in humanities are drawn from departments in the Division of the Humanities.

Offered by the Division

For a description of the following curricula, refer to the section in this catalog on the College of Arts and Sciences.

Curriculum in American Studies.

Curriculum in European Studies.

Curriculum in Humanities.

These curricula are made available to students who wish to organize and correlate their course work beyond the minimum requirements for the liberal arts degree. The programs are made possible through a guided selection of courses within the major and minor fields and additional courses in related fields.

LOWER DIVISION COURSES

42. French Civilization (2) I
(Same course of French 40.)
Conducted in English. No prerequisite.
The major currents and characteristics of French culture, as expressed through the centuries in literature, art, and philosophy.

43. French Civilization (2) II
(Same course as French 41.)
Conducted in English. No prerequisite.
Continuation of Humanities 42.

44. German Civilization (2) I
(Same course as German 40)
Conducted in English. No prerequisite.
The major currents and characteristics of German culture, as expressed through the centuries in literature, art, and philosophy.

45. German Civilization (2) II
(Same course as German 41)
Conducted in English. No prerequisite.
Continuation of Humanities 44.

46. Spanish Civilization (2) I
(Same course as Spanish 40)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, and philosophy.

47. Spanish-American Civilization (2) II
(Same course as Spanish 41)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

48-S. European Civilization (3) Summer
No prerequisite.
A study of the civilization of Europe through a conducted travel tour.

66A-66B. Honors Colloquium (3-3)
Prerequisite: Sophomore standing and admission to the special advising program.
Interdisciplinary conference, with readings, discussion, reports.

UPPER DIVISION COURSES

138. Introduction to Aesthetic Appreciation (1) I
(Same course as Comparative Literature 138)
Conducted in English. No prerequisite.
Major forms of expressions and aesthetic experience in art, music, and literature, presented by an interdepartmental staff through lectures, demonstrations, and panel discussions.

142. French Civilization (2) I
(Same course as French 140)
Conducted in English. No prerequisite.
An advanced course in French culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

143. French Civilization (2) II
(Same course as French 141)
Conducted in English. No prerequisite.
Continuation of Humanities 142.

144. German Civilization (2) I
(Same course as German 140)
Conducted in English. No prerequisite.
An advanced course in German culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

145. German Civilization (2) II
(Same course as German 141)
Conducted in English. No prerequisite.
Continuation of Humanities 144.

146. Spanish Civilization (2) I
(Same course as Spanish 140)
Conducted in English. No prerequisite.
An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

147. Spanish-American Civilization (2) II
(Same course as Spanish 141)
Conducted in English. No prerequisite.
An advanced course in Spanish-American culture from the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

148-S. European Civilization (3) Summer
A study of the civilization of Europe through a conducted travel tour.

150-S. The Cultural Heritage of Europe (3)
The bases and development of the common cultural heritage of Europe in its history, literature, and philosophy, and in related areas like religion, the arts, architecture, and music; the efforts being made today towards cooperation in cultural activities and in various fields connected with them.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. The Humanities and Modern Man (1) Irregular
Lectures open to the public. May be repeated for a total of three units.
Weekly lectures on literature, language, philosophy, and cultural history. Reading and reports required of students enrolled for credit.

198. Integration in the Humanities (3) I, II
The investigation of topics common to two or more departments, with oral and written reports. Required of all senior majors in divisional programs in humanities, and open to seniors with majors in English, foreign languages, history, and philosophy.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: A major within the Division of the Humanities, senior standing, and consent of the instructor.

INDUSTRIAL ARTS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professor: Luce

Associate Professors: Anderson, W., Irgang (Chairman), McLoney, Thiel

Assistant Professors: McMullen, Marsters, Morgan, J., O'Dell

Offered by the Department

Master of arts degree for teaching service with a concentration in industrial arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in industrial arts with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in industrial arts. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

5. General Education Shop (3) I, II

One lecture and six hours of laboratory.

A course in practical arts utilizing the tools and materials of the general metalworking area. Activities include individual projects, field trips, and audiovisual materials.

6. General Education Shop (3) I, II

One lecture and six hours of laboratory.

Prerequisite: Consent of instructor.

A course in practical arts utilizing the tools and materials of industrial arts. Activities include individual projects, field trips, and audiovisual materials.

11. Orientation to the Industrial Arts Profession (2) I, II

Two lectures.

Professional requirements and modern trends in industrial arts education. Problems of teaching and shop organization in the various fields of specialization, directed observation. Required of all industrial arts majors during their first semester.

21. Industrial Drawing (3) I, II

One lecture and six hours of laboratory.

Development of the skills of industrial drawing. Experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping and other forms of graphic presentation.

31. General Metalworking (3) I, II

One lecture and six hours of laboratory.

Development of the skills of general metalworking. Experience in machine shop practice, welding, bench metal, art metal, forge, foundry and sheetmetal.

51. General Woodworking (3) I, II

One lecture and six hours of laboratory.

Development of the skills of general woodworking. Experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing.

61. Electricity-Radio (3) I, II

One lecture and six hours of laboratory.

Development of the skills for and the understandings of the electricity-radio area. Experience with electrical and radio principals and their application.

71. Transportation (3) I, II

One lecture and six hours of laboratory.

Development of the skills of transportation machinery maintenance. Experience in the maintenance of equipment for land, sea and air transportation and an understanding of the mechanical principles involved.

81. Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Development of the skills of graphic arts. Experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing and other duplicating processes. An understanding of the composition of papers and inks.

85. Introduction to Photography (3) I, II
One lecture and six hours of laboratory.
A consideration of photographic optics and chemistry; nature of light and image formation; photographic emulsions, exposure and development. Composition and lighting. Not open to students with credit in Journalism 50.

UPPER DIVISION COURSES

101. Handicrafts for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Consent of the instructor and previous shop experience.
For industrial arts or recreational students who desire to teach handicrafts. Skills in handicrafts are emphasized and directed toward the instructional process.

102. Materials and Techniques for Teaching Handicrafts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 101.
More advanced techniques of handicrafts. Development of audiovisual aids, projects, and resource material for handicrafts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

105-S. Construction Activities for Teachers (3) Summer
One lecture and six hours of laboratory.
Use of common hand tools in construction of teaching aids. Preparation of materials for classroom use in arithmetic, reading, science, social studies, and other curriculum areas. Not open to Industrial Arts majors.

111. General Shop for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Consent of the instructor and previous shop experience.
For industrial arts students who desire to teach general shop. Skill in the general shop is emphasized and directed toward the instructional process.

112. Materials and Techniques for Teaching General Shop (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 111.
More advanced techniques for the general shop. Development of audiovisual aids, projects, and resource material for teaching general shop. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

121. Industrial Drawing (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 21 or consent of instructor.
Further experience in sketching, architectural drafting, mechanical drawing, sheetmetal layout, design, planning, blackboard drawing, mapping, and other forms of graphic presentation. A high level of performance is expected.

122. Industrial Drawing for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 121 and Art 6A.
For industrial arts students who desire to teach industrial drawing. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

123. Materials and Techniques for Teaching Industrial Drawing (3) I, II
Two lectures and three hours of laboratory.
Prerequisite: Education 100 or consent of instructor.
More advanced techniques of industrial drawing. Development of audiovisual aids, projects, and resource material for industrial drawing. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

131. General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 31.
Further experience in machine shop practice, welding, bench metal, art metal, forge, foundry, and sheetmetal. A high level of performance is expected.

132. General Metalworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 131 and Art 6A.
For industrial arts students who desire to teach metalworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

133. Materials and Techniques for Teaching General Metalworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 132 and Education 100.
More advanced techniques of metalworking. Development of audiovisual aids, projects and resource material for metalworking. Physical setting, organization and other pertinent problems. A course of instruction is prepared.

151. General Woodworking (3) I, II
One lecture and six hours of laboratory.
Further experience in cabinetmaking, woodturning, patternmaking, carpentry, boatbuilding, and finishing. A high level of performance is expected.

152. General Woodworking for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 151 and Art 6A.
For industrial arts students who desire to teach woodworking. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

153. Materials and Techniques for Teaching General Woodworking (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 152 and Education 100.
More advanced techniques of woodworking. Development of audiovisual aids, projects, and resource material for woodworking. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

161. Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 61.
Further experience with electrical and radio principles and their applications. A high level of performance is expected.

162. Electricity-Radio for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 161 and Art 6A.
For industrial arts students who desire to teach electricity-radio. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

163. Materials and Techniques for Teaching Electricity-Radio (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 162 and Education 100.
More advanced techniques for electricity and radio. Development of audiovisual aids, projects, and resource material for electricity and radio. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

171. Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 71.
Further experience in the maintenance of equipment for land, sea, and air transportation, and development of an understanding of the mechanical principles involved. A high level of performance is expected.

172. Transportation for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 171 and Art 6A.
For industrial arts students who desire to teach transportation. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

173. Materials and Techniques for Teaching Transportation (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 172 and Education 100.
More advanced techniques of transportation machinery maintenance. Development of audiovisual aids, projects, and resource material for transportation. Physical setting, organization, and other pertinent problems are discussed. A course of instruction is prepared.

181. Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 81.
Further experience in hand composition, presswork, and other activities such as bookbinding, photography, silk screen, relief and intaglio printing, and other duplicating processes. A high level of performance is expected.

182. Graphic Arts for Teachers (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 181 and Art 6A.
For industrial arts students who desire to teach graphic arts. Advanced skills are developed and directed toward the instructional process. Emphasis is placed on the junior and senior high school program.

183. Materials and Techniques for Teaching Graphic Arts (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Industrial Arts 182 and Education 100.
More advanced techniques of graphic arts. Development of audiovisual aids, projects, and resources material for graphic arts. Physical setting, organization, and other pertinent problems. A course of instruction is prepared.

185. Photography for Teachers (3) I, II
One lecture and six hours of laboratory.
Designed for more mature students to learn photographic skills useful in teaching.

186. Advanced Photography (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Industrial Arts 85 or equivalent.
A consideration of advanced negative control, projection printing techniques, composition and editorial content, architectural and illustrative photography, and flood photoflash techniques.

190. Experimental Shop (1 or 2) I, II
Prerequisite: Consent of instructor.
Individual shopwork on complex projects on an experimental basis. May be repeated with consent of instructor.

193. Industrial Arts Organization and Management (2) I, II
Two lectures.
Study of the organization of industrial arts in secondary schools, review of project requirements and methods of developing student participation in shop management.

194. Recent Trends in Industrial Arts Education (2) I, II
Two lectures.
Survey of current trends and practices in the field of industrial arts in secondary education. There will be opportunity for individual work on related problems of interest to members of the class.

198. Senior Project (3) I, II
One lecture and six hours of laboratory.
Prerequisite: Consent of instructor.
Each student will work on a project in a selected industrial arts activity area. Oral progress reports will be made and a final written report is required.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (3) I, II
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced industrial arts. May be repeated with new subject matter for additional credit.

201. Advanced Teaching Problems (3)
Prerequisites: Teaching experience in area selected and consent of instructor. May be repeated with new materials for additional credit.
Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) general metalworking; (c) general woodworking; (d) electricity-radio; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive general shop. Stress on project design and visual materials. May be repeated with new materials for additional credit.

220. History and Philosophy of Industrial Education (3)
A study of the philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.

221. Curriculum Construction in Industrial Arts Education (3)
Selection of teaching content for school situations in compliance with the best known procedures regarding analysis, objectives, methods, and learning, and development of instructional devices related directly to course content.

222. Instructional Resources for Industrial Arts Education (3)
Survey, selection, and compilation of materials used in the development of resource units for instruction in industrial education, involving publications, organized talks, field trips, visual materials, technical literature, and related materials. Organization and evaluation of such materials.

223. Evaluation in Industrial Arts Education (3)
Consideration of the purposes, principles, methods, and criteria of evaluation as applied to industrial education, with emphasis on the special problems of measuring growth, achievement, and performance in various phases of educational effort.

267. Field Work in Industrial Arts (3)
Prerequisites: Consent of instructor, Industrial Arts 200 and industrial arts teaching experience.
Application of the principles of shop organization, management and planning in reference to the objectives of industrial arts in development of school programs. May be repeated with new materials to a total of six units.

290. Bibliography (1)
Exercise in the use of basic reference books, professional literature, and specialized bibliographies, preparatory to the writing of a master's thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ITALIAN

IN THE DIVISION OF THE HUMANITIES

Faculty
Professor: Wolf
Associate Professor: Piffard

Offered by the Department of Foreign Languages
Courses in Italian.
Major or minor work is not offered.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I
Four lectures and one hour of laboratory.
Pronunciation, oral practice, readings on Italian culture and civilization, minimum essentials of grammar.

2. Elementary (4) II
Four lectures and one hour of laboratory.
Prerequisite: Italian 1.
Continuation of Italian 1.

3. Intermediate (4) I
Prerequisite: Italian 2.
A practical application of the fundamental principles of grammar. Reading in Italian of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4) II
Prerequisite: Italian 3.
Continuation of Italian 3. Reading of selections from Italian literature.

JOURNALISM

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty
Professors: Julian (Chairman), Wimer
Assistant Professor: Holowach
Lecturers: Brooks, J., Godfrey, Skinner

Offered by the Department
Major in journalism with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)
Minor in journalism. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

49. Introduction to Mass Communications (3) I

A survey of the work of mass media, their interrelationships, and the services they perform for society; common problems and responsibilities of the mass media; training and background needed in different media.

50. News and Feature Photography (3) I, II

Two lectures and three hours of laboratory.

An elementary course designed primarily for students of journalism and public relations; experience with professional photographic equipment and film processing; contact and projection printing; emphasis on composition and news value of pictures. Not open to students with credit in Industrial Arts 85.

51A. News Reporting (3) I

Two lectures and three hours of laboratory.

Prerequisites: Sophomore standing or consent of instructor and ability to type.

Study of reporting techniques, with intensive laboratory practice in gathering, evaluating, and writing the basic types of news stories.

51B. Advanced News Reporting (3) II

Two lectures and three hours of laboratory.

Prerequisite: Grade of C or better in Journalism 51A.

Intensive laboratory practice in writing the more complex types of news stories. Work includes some reporting for the campus newspaper, *The Daily Aztec.*

92. Newspaper Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec.*

93. Yearbook and Magazine Production (1-3) I, II

Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

UPPER DIVISION COURSES

101. Magazine Article Writing (3) II

Prerequisite: Consent of instructor.

Practice in gathering material and writing articles for specialized areas, with emphasis on the business press. Production of eight articles and marketing of at least one article required.

102. Law of Mass Communications (3) II

Study of libel, defamation, privacy, censorship, advertising laws, postal regulations, and constitutional guaranties affecting press, radio, television; rights and responsibilities of communicators in reporting public affairs.

103. Magazine Editing (3) II

Study in mechanics of the editorial process in magazines, with emphasis on industrial and business publications; selection and preparation of editorial material; picture selection, cropping, captioning; graphic producton processes; layout; preparation of dummies; special purpose booklets and magazines.

104. Radio and Television News (3) I, II

(Same course as Speech Arts 187)

Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures, and kinescopes; filming, editing, and scripting news on motion pictures; using recorders to report special events.

105. Editorial Writing (3) I

Training in the principles and policies of editorial composition for mass communications media.

107. Technical Writing (3) II

Reporting technical developments in nontechnical language. A course in writing and editing primarily for nonmajors in journalism.

117. History of Mass Communications (3) I

American journalism from colonial times to the present, with special attention to radio and other mass media which have entered the news and entertainment field; the relation of their development to society.

121. Current Problems in Mass Communications (3) II

Forces affecting American mass communications today: Government restrictions, economics, pressure groups, censorship, mechanical developments, interrelationships of the media and society; professional ethics.

122. Public Opinion Measurement (3) I

(Same course as Psychology 122)

The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124A-124B. Radio and Television News Production (2-2) I, II

Prerequisite: Journalism 104 or consent of instructor.

Radio and television news production with experience in writing, editing national wire copy and local copy, preparing tapes and on-the-spot recordings of news events for programs produced over local radio and television stations.

132. Propaganda and Public Opinion (3) I, II

(Same course as Political Science 122)

A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life.

144. Reporting of Public Affairs (3) II

Prerequisites: Journalism 51A and 51B.

Coverage of the city hall, courthouse, police headquarters, federal agencies, courts, and other public and political centers.

150. Advanced News and Feature Photography (3) II

Two lectures and three hours of laboratory.

Prerequisite: Journalism 50 or equivalent.

Techniques for achieving the technical and story-telling quality in photojournalism. (Formerly Journalism 53; not open to students with credit for this course.)

151. News Editing (3) I

Three lectures and two additional hours of laboratory.

Prerequisites: Journalism 51A and 51B.

Editing copy, writing headlines, making up pages, handling telegraph copy.

152. High School Journalism (3) II

Methods of conducting high school journalism classes. Editorial, business and mechanical aspects of school publication work, with emphasis on copy editing, headline writing and layout. Not open to journalism majors.

153. Newspaper Advertising (3) I

Principles of advertising for newspapers and trade papers. Emphasis on copywriting, layout, typography, and production. Use of consumer and market surveys, and advertising readership studies in planning local advertisers' sales problems and promotions.

154. Newspaper Advertising Practice (1-2) I, II
Prerequisite: Journalism 153.

Practical work in servicing accounts in advertising department of *The Daily Aztec*. Supervised work in preparation of newspaper copy and layout. Copy-testing methods emphasized. May be repeated for a total of four units.

166. Honors Course (Credit to be arranged) I, II
Special study open to members of the Honors Program in journalism. Refer to the Honors Program.

180. Public Relations (3) I, II
(Same course as Business Administration 155)

Principles, methods, and objectives in the field of public relations; evaluation of the "publics" of institutions and industry; case studies of public relations problems.

183. Problems in Public Relations (3) II
Prerequisite: Journalism 180 or Business Administration 155.

Current public relations problems of industry, public agencies, and other institutions.

191. Internship in Journalism (1-6) I, II
Prerequisites: Journalism 51A, 51B, and consent of instructor.

Prearranged and supervised work on local magazines, city and county newspapers, radio and television stations, and on public relations, publicity, and advertising staffs of civic and business groups. May be repeated to a maximum of six units with no more than three units in any one semester.

192. Newspaper Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in journalism by arrangement with the instructor. Includes reporting, editing, taking and processing pictures, working with the printer, proofreading in production of *The Daily Aztec*.

193. Yearbook and Magazine Production (1-3) I, II
Three hours of laboratory required for each unit. Total credit in Journalism 92, 93, 192, and 193 limited to eight units.

Special work in yearbook and magazine production by arrangement with the instructor. Includes editing and photographic work on *Del Sudoeste* and campus magazines.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

LATIN

IN THE DIVISION OF THE HUMANITIES

Faculty

Professor: Burnett
Associate Professor: Frey

Offered by the Department of Foreign Languages

Courses in Latin.
Major or minor work in Latin is not offered.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I

Four lectures and one hour of laboratory.

Study of the language and Roman culture, with reading of selected prose passages.

2. Elementary (4) II

Four lectures and one hour of laboratory.

Prerequisite: Latin 1 or two years of high school Latin.

Continuation of Latin 1.

3. Intermediate (4) I

Prerequisite: Latin 2 or three years of high school Latin.

A practical application of the fundamental principles of grammar. Reading of selected passages emphasizing the contribution of the ancient culture to our own.

4. Intermediate (4) II

Prerequisite: Latin 3 or four years of high school Latin.

Continuation of Latin 3.

LIBRARY SCIENCE

IN THE DIVISION OF EDUCATION

Faculty

Professor: Stone, John Paul (Coordinator of Library Science)

Offered by the Division of Education

Minor in library science. (Decribed in the section on the General Programs.)

Minor in library science for the general elementary and kindergarten-primary credentials. (Described in the section on Professional Curricula in Education, under Major and Minors for the General Elementary and Kindergarten-Primary Credentials.)

Librarianship program for secondary schools. (Described in the section on Professional Curricula in Education, under Minors for the General Secondary Credential.)

LOWER DIVISION COURSES

1. Use of the Library (1) I, II

Introduction to use of the library. Includes classification, card catalog, periodical indexes, selected reference books, and preparation of bibliographies.

UPPER DIVISION COURSES

110. Bibliography and Reference Materials (3) I, II

Prerequisite: Library Science 1 or consent of instructor.

A comprehensive course dealing with reference books, bibliographies, and source materials, with emphasis upon their use in research. A course of general interest and utility.

118. Selection and Acquisition of Library Materials (3) I

Study of all types of book and nonbook materials, including sources of information, selection, and evaluation. Attention is given to book and film reviews, standard lists, trade publications and bibliographies, publishers' and producers' announcements.

119. Technical Processes (3) II

Theory and methods of organizing library materials; a study of classification, cataloging, and choice of subject headings.

136. School Library Administration (3) I

Objectives, standards, and activities involved in operating the school materials program. Planning, organizing, administering, and coordinating the school library with the instructional program of the school.

138. Organizing and Processing of Curriculum and Special Materials (3) II

Prerequisite: Library Science 119.

Methods of purchasing, processing, classifying, cataloging and servicing special curriculum and audio-visual materials.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

184. History of Books and Libraries (3) II

The historical development of the book and of the library from the earliest times to the present day; examines their influence upon our schools and culture. Open to all upper division students.

199. Special Study (1-6) I, II

Individual study. Maximum credit six units.

Prerequisite: Consent of instructor.

MATHEMATICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professors: Branstetter, Eagle, Harris, V., Harvey, A., Riggs, Smith, N. B. (Chairman)

Associate Professors: Becker, Bell, Holmes, C., Shaw, Warren L., Willerding

Assistant Professors: Bray, Burton, Clark, H., Deaton, de Malignon, Emerson, Feng, Fountain, Gindler, Killgrove, Kvarda, Lopez, Moser, Saltz, Van de Wetering

Lecturers: Gruber, Farnell, Marosz, Obata, Simmons, Walsh, M.

Offered by the Department

Master of arts or master of science degree in mathematics; and a master of arts degree for teaching service with a concentration in mathematics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in mathematics with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in mathematics with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in mathematics. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

MATHEMATICS PLACEMENT EXAMINATIONS

All students who expect to enroll in Mathematics 3, 4, 12, 21, 22, 40, or 50 and have not completed prerequisite courses at San Diego State College must take the mathematics placement tests. These tests may be used to satisfy all or part of the prerequisite requirements for these courses and they also serve as a basis for the selection of students for the mathematics honors program. The schedule for these examinations will be posted on the mathematics bulletin board. Provision is also made for these examinations to be taken by the entering freshman or the transfer student prior to registration. Refer to the calendar.

LOWER DIVISION COURSES

A. Basic Mathematics (3) II

Fundamentals of mathematics with applications to everyday problems. Required of all students failing the competency examination in mathematics. Not open for credit to students passing this examination. May not be used in the major or minor.

3. Intermediate Algebra (3) I, II

Prerequisite: One year of elementary algebra.

Review of elementary algebra, exponents, radicals, logarithms, quadratic equations, arithmetic and geometric progressions.

4. Trigonometry (2) II

Prerequisites: Credit in plane geometry in either high school or college combined with either credit in Mathematics 3 at this college or qualification by examination. Mathematics 3 and 4 or Mathematics 4 and 40 may be taken concurrently.

Numerical and practical aspects of trigonometry.

7. Introduction to Computer Programming (2)

One lecture and three hours of laboratory.

Elementary mathematical principles of computation. Instruction in the use of some of the peripheral equipment. Programming of problems and operation of the computer will be stressed.

8. Theory and Use of the Slide Rule (1)

Practice in performing the fundamental operations of the slide rule.

10. Foundations of Arithmetic (3) I, II

Prerequisite: Passing score on mathematics competency test.

The structure and fundamental concepts of arithmetic. Primarily intended for prospective elementary school teachers.

12. Elementary Statistics (3)

Prerequisite: Mathematics 3 or equivalent.

Tabular and graphical presentation, measures of central tendency and variability, analysis of times series, linear correlation coefficient. Applications from the fields of biology, economics, education, engineering and psychology. Not open to students with credit in another statistics course.

18. Introduction to Mathematics (3) II

Prerequisites: Two years of high school mathematics, or equivalent.

Topics from logic, modern algebra, and analysis designed to give the student an introduction to the structure of mathematical theories and their applications.

21. Mathematical Analysis (3) I

Prerequisites: Mathematics 3 or equivalent.

Concepts and applications of algebra, analytic geometry and the polynomial calculus, with emphasis on graphical methods. Designed for students who do not intend to prepare for a professional career in one of the physical sciences or in engineering. Not open to students with credit in Mathematics 40.

22. Mathematical Analysis (3) II

Prerequisite: Mathematics 21.

A continuation of Mathematics 21 including concepts of trigonometry and the calculus of elementary transcendental functions. Not open to students with credit in Mathematics 50.

40. Advanced Algebra and Trigonometry (5) I, II

Prerequisite: Credit in trigonometry in either high school or college combined with either Mathematics 3 at this college with a grade of C or better, or qualification by examination.

Variation, progressions, complex numbers. De Moivre's theorem, solutions of equations, binomial theorem, determinants, permutations, combinations, probability, inequalities, partial fractions, analytical trigonometry, graphs or trigonometric functions, etc.

50. Analytic Geometry and Calculus (5) I, II

Prerequisite: Mathematics 40 at this college with grade of C or better, or qualification by examination on subject matter of Mathematics 40.

Topics in analytic geometry, differentiation and integration of algebraic functions.

51. Differential and Integral Calculus (4) I, II

Prerequisite: Mathematics 50 with grade of C or better.

Differentiation and integration of the elementary transcendental functions; applications.

52. Differential and Integral Calculus (4) I, II
Prerequisite: Mathematics 51 with grade of C or better.
Infinite series, partial differentiation, differential equations, multiple integrals, applications. Not open to students with credit for Mathematics 117.

60. Introduction to Modern Mathematical Concepts (3) II
Prerequisite: Mathematics 40 or 21.
Elementary approach to selected topics from mathematical logic, set theory, probability, matrices, linear programing and theory of games.

UPPER DIVISION COURSES

101. Mathematical Concepts for Secondary School Teachers (3) I, II
Prerequisite: Mathematics 50 or consent of instructor.
An examination of the concepts of secondary school mathematics from the teacher's point of view.

104. History of Mathematics (3) I, II
History of mathematics down to early modern times.

105. Introduction to the Foundations of Geometry (3)
Prerequisite: Mathematics 51 or 22.
The foundations of Euclidean and hyperbolic geometries. Highly recommended for all prospective teachers of high school geometry.

106. Projective Geometry (3) II
Prerequisites: Mathematics 51 or 22 and consent of instructor.
Concurrence of lines, collinearity of points and other properties of figures not altered by projections; construction and study of ellipses, hyperbolas, and parabolas by means of projections.

108. Differential Geometry (3)
Prerequisite: Mathematics 52.
Curves in space, Frenet formulas, curves on surfaces, geodesics, lines of curvature, asymptotic lines, Gaussian curvature.

117. Intermediate Calculus (4) I, II
Prerequisite: Math 51 with grade of C or better.
Essentially the same as Mathematics 52. Advanced students may be assigned special work. Not open to mathematics majors or students with credit in Mathematics 52.

118A. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Math 52 or equivalent.
Selected topics from ordinary differential equations, with applications; hyperbolic, elliptic, Bessel and gamma functions, Fourier series and integrals, electromechanical analogies, the Laplace transform, and partial differential equations.

118B. Advanced Mathematics for Engineering Students (3) I, II
Prerequisite: Mathematics 118A.
A continuation of Mathematics 118A.

119. Differential Equations (3) I, II
Prerequisite: Mathematics 52 or equivalent.
Ordinary differential equations with applications to geometry, physics, and chemistry.

121A. Advanced Calculus I (3)
Prerequisite: Mathematics 52 or equivalent.
The real number system, limits and other topics, with emphasis on functions of one variable.

121B. Advanced Calculus II (3)
Prerequisite: Mathematics 121A.
A continuation of Mathematics 121A with emphasis on functions of two or more variables.

124. Vector Analysis (3)

Prerequisite: Mathematics 52 or equivalent.

Vector algebra, differentiation of vectors, gradient, divergence, and curl. Applications to geometry and physics.

130A. Statistical Methods (3) I

Two lectures and three hours of laboratory.

Prerequisites: Mathematics 12 or equivalent and Mathematics 22 or 40.

Sampling and sampling distributions; normal distributions; F, T, Chi-square tests; confidence limits; analysis of variations.

130B. Statistical Methods (3) II

Prerequisite: Mathematics 130A.

Correlation, regression, analysis of convariance, nonparametric techniques, sensitivity experiments, design of experiments.

134. Probability (3)

Prerequisite: Mathematics 52 or equivalent.

Definitions, computation of probability by enumeration of cases, discrete and continuous chance variables, density functions, moments, limit theorems, selected distributions.

135A. Numerical Analysis and Computation (3) I

Prerequisite: Mathematics 52 or equivalent.

Newton, Lagrange and Chebyshev approximation of functions. Inverse interpolation, numerical evaluation of roots and definite integrals.

135B. Numerical Analysis and Computation (3) II

Prerequisites: Mathematics 119 or 118A and 135A.

Solution of systems of linear equations. Application of numerical methods to the solution of partial differential equations and of integral equations.

137. Combinatorial Principles for Digital Computers (3)

Prerequisite: Mathematics 7 and 52, or consent of instructor.

Comparison of digital and analog computers. Number base representation theory. Boolean functions and generalized binary operators. Code-controlled machines. Logical organization of digital computers. Externally programmed machines. Turing machines, algorithms and their implications to computability and writing of programs. Coding of combinatorial problems.

140A. Mathematical Statistics (3) I

Prerequisite: Mathematics 52 or equivalent.

Graphical and arithmetical characterization of observed frequency distributions, moments, use of normal curve, curve fitting, correlation, etc.

140B. Mathematical Statistics (3) II

Prerequisite: Mathematics 140A.

Theoretical discrete and continuous distributions, multiple and partial correlation, large and small sample theory including student's T, Chi-square, and the F distributions with applications.

150A. Modern Algebra (3) I

Prerequisite: Mathematics 52 or consent of instructor.

Selected topics from modern algebra to include an introduction to the theory of groups, theory of equations, and finite mathematics.

150B. Modern Algebra (3) II

Prerequisite: Mathematics 150A.

A continuation of Math 150A to include a study of matrices, determinants and fields.

152. Number Theory (3)

Prerequisite: Mathematics 50 or consent of instructor.

Selected topics from the theory of numbers to include congruences, Diophantine equations, and a study of prime numbers.

155. Mathematical Logic (3)
Prerequisite: Mathematics 51 or 60, or Philosophy 20.
The logical rules of proof governing sentential connectives and the universal and existential quantifiers with applications. Not open to students with credit in Philosophy 121.

156. Logical Foundations of Mathematics (3)
Prerequisite: Mathematics 52 or 155.
The axiomatic method. Cantor's set theory and its antinomies. Development of various viewpoints on foundations of mathematics: logicism, institutionalism, formalism.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Partial Differential Equations (3)
Prerequisite: Mathematics 119 or equivalent.
A study of initial and boundary value problems using separation of variables methodology.

175. Functions of a Complex Variable (3)
Prerequisite: Mathematics 52.
Analytic functions, Cauchy-Riemann equations, theorem of Cauchy, Laurent series, calculus of residues.

196. Advanced Topics in Mathematics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern mathematics. May be repeated with the approval of the instructor for a total of six units.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced mathematics. May be repeated with new subject matter for additional credit.

210A-210B. Mathematics of Physics (3-3)
(Same course as Physics 210A-210B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthogonal function, theory, calculus of variations and probability theory with particular emphasis on application to physical theory.

212. Advanced Ordinary Differential Equations (3)
Prerequisite: Mathematics 119 and 121A.
Existence and uniqueness theorems, Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.

214. Advanced Partial Differential Equations (3)
Prerequisite: Mathematics 170.
Theory and application of the solution of boundary value problems in the partial differential equations of engineering and physics by various methods; orthogonal functions, the Laplace transformation, other transformation methods, Green's functions.

220A-220B. Topology (3-3)
Prerequisite: Mathematics 121B.
Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan Curve Theorem.

224A-224B. Functions of a Complex Variable (3-3)
Prerequisites: Mathematics 121B and 175. 224A is prerequisite to 224B.
Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

226A-226B. Functions of a Real Variable (3-3)
Prerequisites: Mathematics 119 and 121B. 226A is prerequisite to 226B.
Point sets, functions and limits, continuity, differentiation. Riemann and Lebesgue integration.

231. Theory of Groups (3)
Prerequisite: Mathematics 150B or consent of instructor.
A development of the theory of groups.

232. Theory of Fields (3)
Prerequisite: Mathematics 150B or consent of instructor.
A study of both finite and infinite fields, and field extensions.

233. Linear Algebra and Matrix Theory (3)
Prerequisite: Mathematics 150B or consent of instructor.
A study of matrices, determinants, and vector spaces.

240A-240B. Advanced Mathematical Statistics (3-3)
Prerequisites: Mathematics 140B and 121A. 240A is prerequisite to 240B.
Theory of common distribution functions, derivation of sampling distributions with emphasis on normal populations, estimation of maximum likelihood, ratio tests of parametric hypotheses, general linear hypothesis theory.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

SPECIAL COURSES FOR NATIONAL SCIENCE FOUNDATION INSTITUTE

The following courses are open only to participants in the National Science Foundation Institute, except with consent of instructor.

Lower Division Course

54. Calculus Review (2)
Review of the fundamentals of elementary calculus.

Upper Division Courses

181A-181B. Selected Topics of Secondary School Mathematics (2-2)
Selected concepts of secondary school mathematics; recommended modern presentation of these concepts; relation of these concepts to more advanced college mathematics.

187A-187B. Probability and Statistics for High School Teachers (2-2)
Probability, measures of central tendency and dispersion, characteristics of frequency functions of discrete and continuous variates; applications.

Graduate Course

287. Intermediate Analysis (3)
Point-set theory, fundamental theorems on continuous functions, theory of integration, and infinite series.

MICROBIOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professor: Myers
Associate Professor: Walch (Chairman)
Assistant Professor: Moore
Lecturer: Valaske

Offered by the Department

Master of arts or master of science degree in biology with an emphasis in microbiology; and a master of arts degree in biology for teaching service with a concentration in microbiology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in microbiology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in microbiology with the B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Curriculum in Medical Technology. (Described in the section on the General Programs.)

Minor in microbiology. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1. General Microbiology (Bacteriology) (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1A or 2A (Chemistry 1A-1B for major or minor in microbiology). Students with credit for Microbiology 110 may enroll but will receive only two additional units of credit.

An introduction to microbiology. Effects of physical and chemical agencies upon bacteria; biochemical activities of bacteria; microscopic examination and cultivation of micro-organisms; the bacteria of air, water, soil, milk, and dairy products, other foods; industrial applications. Introduction to disease-producing micro-organisms.

UPPER DIVISION COURSES

101. General Microbiology (Bacteriology) (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Chemistry 1A or 2A. (Chemistry 1A-1B for major in microbiology.)

Students with credit in Microbiology 110 may enroll but will receive only two additional units of credit.

Same general areas covered as in Microbiology 1, but on more intensive upper division level.

102. Advanced Bacteriology (4) I

Two lectures and six hours of laboratory.

Prerequisite: Microbiology 1 or 101. Recommended: Chemistry 12, biochemistry, and physiology.

Agents of disease and methods of host resistance. Laboratory experience in diagnosis of bacterial pathogens and antibiotic sensitivity. Concepts of virulence and pathogenicity, considering the host-parasite relationship.

103. Fundamentals of Immunology and Serology (4) II

Two lectures and six hours of laboratory.

Prerequisites: Microbiology 1 or 101 and 102, or consent of instructor.

Antigen-antibody reactions, the immunochemistry of protein and nonprotein cell substances, hemo-serology, and theoretical and pathologic aspects of hypersensitivity. Laboratory diagnosis by use of serological techniques.

104. Medical Mycology (4) I

Two lectures and six hours of laboratory.

Prerequisite: Credit or concurrent registration in Microbiology 102.

A study of the mycotic agents of disease and methods of systematic identification of such agents. Concept of epidemiology, diagnosis, pathology, and host-responses are considered.

105. Bacterial Physiology (2) II

Prerequisites: Microbiology 1 or 101 and Chemistry 12 (Organic Chemistry).

A study of the physiology and intermediary metabolism of micro-organisms.

106. Bacterial Physiology Laboratory (2) II

Six hours of laboratory.

Prerequisite: Microbiology 105 or concurrent registration.

A study of bacterial growth and variation and the methods used to assess and control these activities. Preparation of cellular extracts; determination of enzyme activity; manometric techniques, determination of metabolic products; microbiologic assay.

107. Virology (2) II

Two lectures.

Prerequisite: Credit or concurrent registration in Microbiology 102.

An introduction to viruses, their structure, function, culture, and methods of study.

108. Virology Laboratory (2) II

Six hours of laboratory.

Prerequisite: Credit or concurrent registration in Microbiology 107.

The culture, isolation, and characterization of viruses.

109. Hematology (3) II

One lecture and six hours of laboratory.

Prerequisite: Biology 5. Recommended: Chemistry 12 and physiology.

The study of normal and pathological blood with chemical, physical, and microscopic methods.

110. Microbiology and Man (2) I, II

Two lectures and demonstrations.

Prerequisite: A college course in biology.

A nontechnical course covering the nature of micro-organisms; their significance in infection, agriculture, sanitation, and industry. Not open to students with credit in Microbiology 1 or 101.

166. Honors Course I, II (Credit to be arranged)

Refer to the Honors Program.

189. Clinical Laboratory Procedures (4) II

One lecture and nine hours of laboratory.

Prerequisites: Microbiology 102, 103, 104, 109; and Chemistry 114A and 114B, taken concurrently or previously, or consent of instructor.

Experience in laboratory procedures in the college health services and science laboratories, with instruction in the appropriate fields of the licensing examinations.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisites: 15 units of work in the life sciences (including courses in microbiology) with grades of 3 or B, and consent of the instructor.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced microbiology. May be repeated with new content for additional credit.

210. Seminar in Medical Bacteriology (2)
Prerequisite: Microbiology 102 or consent of instructor.
May be repeated with new content to a maximum of four units.

220. Seminar in Industrial and Agricultural Microbiology (2)
Prerequisite: Microbiology 101 or consent of instructor.
May be repeated with new content to a maximum of four units.

230. Seminar in Medical Mycology (2)
Prerequisite: Microbiology 104 or consent of instructor.
May be repeated with new content to a maximum of four units.

240. Seminar in General Microbiology (2)
Prerequisites: Microbiology 101 and 105, or consent of instructor.
May be repeated with new content to a maximum of four units.

250. Seminar in Virology (2)
Prerequisite: Microbiology 107 or consent of instructor.
May be repeated with new content to a maximum of four units.

260. Seminar in Immunology and Serology (2)
Prerequisite: Microbiology 103 or consent of instructor.
May be repeated with new content to a maximum of four units.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

MUSIC

IN THE DIVISION OF THE FINE ARTS

(Associate member in the National Association of the Schools of Music)

Faculty

Emeritus Faculty: Smith, Leila D.

Professors: Smith, J. D. (Chairman), Springston

Associate Professors: Anderson, P. V., Blyth, Genzlinger, Hurd, Rost, Smith, D., Snider

Assistant Professors: Biggs, Flye, Hogg, Lambert, Loomis, Savage, Sheldon, Ward-Steinman

Lecturers: Back, Mullinix, Murray

Offered by the Department

Master of arts degree with a major in music; and a master of arts degree for teaching service with a concentration in music. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in music with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in music. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

ELECTIVES IN MUSIC

The Music Department offers certain courses which fulfill the needs of students who do not have music as a major or minor subject but who are interested in music as an elective study area for the enrichment of their cultural background. Courses particularly suited for these needs are Music 51 and 151 and the music courses numbered 70 to 88 and from 170 to 188; such courses are designated as general education courses and may be taken as partial fulfillment of the literature, philosophy, and the arts requirement in general education.

Some students will be musically prepared to elect courses in music which may or may not be included in the general education group. Enrollment by qualified students who wish to elect these courses is encouraged.

CONDITIONS UNDER WHICH CREDIT MAY BE GIVEN FOR MUSIC STUDY UNDER PRIVATE INSTRUCTORS

Credit may be allowed for private instruction in music under the following conditions:

1. The applicant for such credit must be either a regularly enrolled student in the Music Department of the college (that is, a music major or minor), or he must have as a prerequisite or be taking concurrently with his private study, three units chosen from these specific courses: Music 7A, 9A, 51, or 151.

2. The instructor giving such private work must be approved by the Music Department. All private work and names of all such teachers must be registered in the office of the Music Department chairman at the beginning of the semester.

3. Under no circumstances may a student change teachers in the middle of a semester without first notifying the chairman of the Music Department and securing his permission for this change.

4. Prior to the start of private study in San Diego State College, the student is required to take a placement examination conducted by the Music Department faculty at the beginning of the semester, which will show the status of the student at the beginning of his work.

5. Students who have dropped out of school, or have stopped taking Applied Music for credit for one semester or more, upon the resumption of that instruction for credit are required to take the placement examination.

6. Evidence that the standards of the Music Department have been met will be shown by an examination conducted by the Music Department faculty at the end of the semester.

7. Ten clock hours of lessons and adequate preparation to pass the Applied Music examinations and the curriculum requirements of the department are required for one unit of credit.

LOWER DIVISION COURSES

7A. Musicianship—For General Elementary Teachers (3) I, II

Four hours. No prerequisite.

Elementary music theory and skills including notation, meter, rhythm, scales, intervals, triads, sight-singing, ear-training, dictation, elementary keyboard facility and other rudiments. State-adopted elementary music texts used. Open only to candidates for the elementary teaching credential.

7B. Music Materials for the Elementary School (3) I, II

Three hours.

Prerequisite: Music 7A or consent of instructor.

Study of all phases of elementary school music: singing, listening, reading, creative music, instruments, repertoire of songs and records, music projects. Required of all general elementary credential candidates.

9A-9B. Elementary Harmony (3-3) I, II

Four hours.

Prerequisite: Music 9A is prerequisite to 9B.

Sight-singing, dictation, and keyboard harmony. Traditional diatonic harmony, four-voice writing, analysis.

10A-10B. Piano—Elementary Class Instruction (1-1) I, II
Two hours.
Prerequisite: Music 10A is prerequisite to 10B.
Basic keyboard experience through study of music reading, notation, scales, chords, and sight-reading covering a repertoire of beginning and intermediate songs and piano literature, with emphasis on keyboard harmony. Required of music majors and minors and credential candidates for teaching at the kindergarten-primary level.

10C-10D. Piano—Elementary Class Instruction (1-1) I, II
Two hours.
Prerequisite: Music 10B is prerequisite to 10C; and 10C to 10D.
Continuation of Music 10A-10B.

11. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units.

15A. Voice—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
A class for beginners in the vocal field taking up the problems of breath control, tone placement, articulation and enunciation. Frequent classroom performance of simple songs.

15B. Class Voice—Elementary Class Instruction (1) I, II
Two hours.
Prerequisite: Music 15A or equivalent.
Study of more advanced songs with attention being given to interpretation, as well as continued work on tone, articulation and placement. Frequent performance before class required.

16. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

20A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 120A.

20B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 120B.

21. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Material and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello, bass. May be repeated to a maximum of four units of credit.

25A. Clarinet—Elementary Class Instruction (1) I, II
Two hours. No prerequisite.
Fundamentals of teaching the clarinet by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125A.

25B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II

Two hours. No prerequisite.

Fundamentals of teaching oboe, flute, and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 125B.

26. Woodwinds—Intermediate Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Materials and techniques of intermediate level are studied in detail. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

30A. Brass—Elementary Class Instruction (1) I

Two hours. No prerequisite.

Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130A.

30B. Brass—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 130B.

31. Brass—Intermediate Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Materials and techniques of intermediate level are studied in detail. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

35. Percussion—Elementary Class Instruction (1) I, II

Two hours. No prerequisite.

Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 135.

50. Applied Music—Individual Study (1) I, II

Ten one-hour lessons or 15 40-minute lessons.

For the teaching credential performance requirement or for the requirements of the major emphasis curricular leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated for a total of four units.

Piano
Organ
Voice
Flute
Oboe
Clarinet
Saxophone
Bassoon
French Horn
Trumpet
Trombone
Baritone Horn
Tuba
Percussion
Violin
Viola
Cello
Contrabass
Composition

51. Introduction to Music (3) I

Three lectures. No prerequisite.

Practical approach to hearing music with understanding and pleasure, througn study of representative compositions of various styles and performance media, great musicians and their art. Music correlated with other arts through lectures, recordings, concerts. Closed to music majors and minors.

52. Orientation in Music Literature (3) I, II

Three lectures. No prerequisite.

An introductory course in the elements of musical syle, structure, and media of expression as found in representative musical literature. Lectures, text, and assigned study of phonograph recordings and musical scores.

53. Opera Technique (2) I, II
Four hours per week. No prerequisite.
Training in the interpretation and characterization of light and grand opera. Specific work in coordination of operatic ensemble.

59A. Intermediate Harmony and Two-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 9B.
Continuation of Music 9B. Harmonic alteration and modulation. Two-voice counterpoint with compositional exercise in appropriate forms.

59B. Advanced Harmony and Three-part Counterpoint (3) I, II
Four hours.
Prerequisite: Music 59A.
Continuation of Music 59A. Chromatic harmony and remote modulation. Analysis and writing in the smaller homophonic forms. Three-voice counterpoint with compositional exercise in appropriate forms.

PERFORMANCE ORGANIZATION COURSES

The performance organization courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

70. Chamber Music (1) I, II
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

72A. Beginning Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: One of the following: Music 20A, 20B, 25A, 25B, 30A, 30B, or equivalent.
Open to all instrumental students. Group performance of simple orchestral and band scores.

72B. Intermediate Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: Music 72A or equivalent.
Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.

75. Marching Band (1) I
Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

76. Symphonic Band (1) I, II
Semester I: Concurrent registration in Music 75 and 76 required. Combined activity, six hours.
Semester II: Activity, five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

80. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

85. Concert Choir (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

86. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

87. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

88. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

UPPER DIVISION COURSES

102A. Chamber Music Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Instrumental ensemble repertoire, including all ensemble combinations from sixteenth to twentieth centuries. Analysis by use of scores and recordings.

102B. Keyboard Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Piano, organ, and other clavier literature from the sixteenth to twentieth centuries. Recordings, scores, and guest performers.

103A. Symphonic Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
A study of the symphony and symphonic poem; the evolution of their growth; an analysis with scores of the structure, harmonic content, and instrumentation of representative works of each period; an examination of their meaning and place in the history of music.

103B. Song Literature (2) I, II
Two lectures.
Prerequisites: Music 152A and 152B.
Historical and musical development of the art song and of the folk song. Works of representative European and American composers in these media. Recordings and scores.

105. Modern Harmonic Practice and Four-part Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Analysis and composition in modern idioms. Continuation of contrapuntal technique into four-voice technique, writing of canon and fugue.

106. Sixteenth Century Counterpoint (3) I, II
Three lectures.
Prerequisite: Music 59B.
Contrapuntal techniques of the sixteenth century, as revealed in the works of Palestrina, Lassus, and Ingegeneri. Compositional exercises in setting parts of the Mass and in writing motets.

107. Composition (3) I, II
Three lectures.
Prerequisite: Music 59B.
Original writing in the larger homophonic and polyphonic forms, for various media. Opportunity for recital performance of original works.

108. Form and Analysis (3) I, II
Three lectures.
Prerequisite: Music 59B.
Structure and design as found in the traditional musical forms. Development of detailed analytical technique.

109A-109B. Instrumentation and Arranging (2-2) I, II
Two lectures.
Prerequisite: Music 59B. Music 109A is prerequisite to 109B.
Arranging of music for full orchestra. Selected works of students to be performed by standard orchestras.

111. Piano—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

112. Piano—Advanced Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be repeated to a maximum of four units of credit.

116. Voice—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the intermediate level are studied in detail. May be repeated to a maximum of four units of credit.

117. Voice—Advanced Voice Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of the advanced level are studied in detail. May be repeated to a maximum of four units of credit.

118S. Workshop in Choral Art (6) Summer
Prerequisite: Consent of instructor.
An integrated course in choral and chamber music to be performed by workshop participants with the College Chorus and the San Diego Symphony Orchestra and in chamber music concerts. Development of analytical technique; study of vocal technique, of the larger forms, and of styles, including performing practices of the baroque and later periods. May be taken twice for credit.

120A. Strings—Elementary Class Instruction (1) I
Two hours. No prerequisite:
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills. Primarily for students preparing for a teaching credential in music. Not open to students with credit in Music 20A.

120B. Strings—Elementary Class Instruction (1) II
Two hours.
Prerequisite: Music 20A or 120A.
Fundamentals of teaching violin, viola, cello, and string bass by lecture and acquisition of elementary skills emphasizing those instruments not previously studied in Music 20A or 120A as well as string class methods. Not open to students with credit in Music 20B.

121. Strings—Intermediate Class Instruction (1) I, II
Two hours.
Prerequisite: Satisfactory audition before the instructor.
Materials and techniques of intermediate level are studied in detail. Sections are offered in violin, viola, cello, and bass. May be repeated to a maximum of four units of credit.

122. Strings—Advanced Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in violin, viola, cello, and bass. May be repeated to a maximum of four units of credit.

123-S. Workshop in Instrumental Techniques and Chamber Music for String, Woodwind, and Brass Instruments (2) Summer

Prerequisite: Consent of instructor.

The analysis and interpretation of the literature for each instrument, with performance in various ensemble units; both group and individual instruction in class, under performing professional musicians.

125A. Clarinet—Elementary Class Instruction (1) I, II

Two hours. No prerequisite.

Fundamentals of teaching the clarinet by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25A.

125B. Oboe, Flute, and Bassoon—Elementary Class Instruction (1) I, II

Two hours. No prerequisite.

Fundamentals of teaching oboe, flute, and bassoon by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 25B.

126. Woodwinds—Intermediate Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Materials and techniques of intermediate level are studied in detail. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

127. Woodwinds—Advanced Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in flute, oboe, clarinet, and bassoon. May be repeated to a maximum of four units of credit.

130A. Brass—Elementary Class Instruction (1) I

Two hours. No prerequisite.

Fundamentals of teaching the trumpet and French horn by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30A.

130B. Brass—Elementary Class Instruction (1) II

Two hours.

Prerequisite: Music 30A or 130A.

Fundamentals of teaching the bass clef instruments (trombone, baritone, and tuba), by lecture and acquisition of elementary skills. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 30B.

131. Brass—Intermediate Class Instruction (1) I, II

Two hours.

Prerequisite: Satisfactory audition before the instructor.

Materials and techniques of intermediate level are studied in detail. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

132. Brass—Advanced Class Instruction (1) I, II

Two hours.

Prerequisite: Junior standing.

Repertoire includes study of standard orchestral parts, solos, sonatas, suites and concerti. Sections are offered in horn, trumpet, trombone, tuba, and baritone. May be repeated to a maximum of four units of credit.

135. Percussion—Elementary Class Instruction (1) I, II

Two hours. No prerequisite.

Fundamentals of teaching percussion through acquisition of elementary skill on the snare drum and by demonstration and lecture regarding all commonly used percussion instruments of definite and indefinite pitch. Open to all students, but primarily for those preparing for a teaching credential in music. Not open to students with credit in Music 35.

140. Planning and Development of Marching Band Shows (2) I

Two hours.

Prerequisite: Two semesters of Music 75 or 175.

The organizing, charting, and producing of half-time shows for football games for prospective high school teachers. Shows are planned and produced by the students and performed by the Marching Band.

141. Methods in Teaching Piano (3) I, II

Three hours.

Prerequisite: Junior standing.

Teaching of beginning and intermediate piano. Survey of materials available for child and adult classes. Special consideration of the problems of the adult beginner. Supervised teaching of beginning students in individual lessons and class groups.

142. Survey of Harmony and Musical Form (2) (Irregular)

Two lectures.

Prerequisite: A minimum of four semesters of basic music theory.

A review of diatonic and chromatic harmony, modulation and musical form. The material covered will serve as refresher study for the Colleague Examination under the California Plan of the Music Teacher's Association of California. Not open to music majors or minors.

146A. Choral Conducting (1) I, II

Three hours.

Prerequisite: Junior standing.

Elements of baton technique and development of basic skills common to choral conducting. Representative literature and techniques for choral organizations will be studied and performed. Practical experience in typical conducting situations will be emphasized in various grade levels.

146B. Instrumental Conducting (1) II

Three hours.

Prerequisite: Music 146A.

Study of orchestra and band scores of graduated levels of advancement. The class will prepare and conduct instrumental works in public performances.

150. Applied Music—Individual Study (1) I, II

For the teaching credential performance requirement or for the requirements of the major emphasis curricula leading to the A.B. degree with a major in music. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated for a total of four units.

Piano
Organ
Voice
Flute
Oboe
Clarinet
Saxophone
Bassoon
French horn
Trumpet
Trombone
Baritone horn
Tuba
Percussion
Violin
Viola
Cello
Contrabass
Composition

151. Great Music (3) I, II
Three lectures. No prerequisite.
Instrumental and vocal music in the larger forms studied through directed listening. Artistic trends and their effect upon music composition and performance. Completion of Music 51 is recommended, but not required as a prerequisite.

152A-152B. History of Music (2-2) I, II
Two lectures.
Prerequisites: Music 52 and 59B; Music 152A is prerequisite to 152B.
Detailed study of the chronological development of musical art and forms from the Middle Ages to the present. Analytical score study and assigned recordings. Familiarity with musicological resources through individual assignments.

153. Opera Technique (2) I, II
Four hours. No prerequisite.
Training in interpretation and characterization of light and grand opera. Specific work in coordination of opera ensemble.

166. Honors Course I, II (Credit to be arranged)
To be arranged after consultation with the chairman of the department. Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of the department chairman.

PERFORMANCE ORGANIZATION COURSES

The performance group courses are devoted to the study in detail and the public performance of a wide range of representative literature for each type of ensemble and designed to provide students with practical experience in rehearsal techniques.

170. Chamber Music (1) I, II
Three hours.
Prerequisite: Consent of instructor.
Sections for string, woodwind, brass, piano, vocal, and mixed ensemble groups. May be repeated to a maximum of four units.

172A. Beginning Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: One of the following: Music 20A, 20B, 25A, 25B, 30A, 30B, or equivalent.
Open to all instrumental students. Group performance of simple orchestral parts and band scores.

172B. Intermediate Instrumental Ensemble (½) I, II
Two hours.
Prerequisite: Music 72A or equivalent.
Group performance of orchestral and band scores of more advanced grade. Materials covered will prepare the student for minor parts in either the symphony orchestra or the symphony band.

175. Marching Band (1) I
Concurrent registration in Music 175 and 176 required. Combined activity, six hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of two units.

176. Symphonic Band (1) I, II
Semester I: Concurrent registration in 175 and 176 required. Combined activity, six hours.
Semester II: Five hours per week.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

180. Symphony Orchestra (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

185. Concert Choir (1) I, II
Five hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

186. Treble Clef (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

187. Men's Glee Club (1) I, II
Three hours.
Prerequisite: Consent of instructor.
May be repeated to a maximum of four units.

188. College Chorus (1) I, II
Three hours. No prerequisite.
Open to all persons interested in performing oratorio, cantata, opera, and the extended choral works. No entrance auditions are required. May be repeated to a maximum of four units of credit.

GRADUATE COURSES

200. Seminar in Music Education (3)
Prerequisite: Consent of instructor.
Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.

A. Supervision of music education
B. Junior high school music
C. Marching band technic
D. Instrumental methods
E. Choral methods

203. Musicology (3)
Prerequisites: Music 152A and 152B.
Problems and methods of research in aesthetics, acoustics, music history and related fields. Source materials, bibliography. Completion of written project.

207. Composition (2 to 3)
Prerequisite: Music 107.
Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a project.

208. Seminar: Music Theory (3)
Prerequisite: Music 108.
A survey of important theoretical approaches to music, from pre-Socratic writers to the present.

209. Advanced Orchestration (2) I, II
Prerequisite: Music 109B.
Intensive work in the practical scoring for ensembles, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

218. Seminar in Choral Art (6) Summer
Prerequisite: Consent of instructor.
A study of choral and chamber music performed by seminar particiants in the College Chorus, the San Diego Symphony Orchestra, and Chamber Music Concerts. Development of analytical technique; study of vocal techniques, of the larger forms, and of styles, including performing practices of the baroque and later periods. Total credit for Music 118-S and Music 218 limited to 18 units, with a limit of six units which may be applied to the master's degree. (Formerly Music 207.)

246A. Advanced Choral Conducting (2)
Prerequisite: Music 146B.

Course designed to develop skills at professional level; study of different styles of choral literature and their relationship to conductor's art; score analysis and experience in conducting.

246B. Advanced Instrumental Conducting (2)
Prerequisite: Music 146B.

Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature, score analysis and experience in conducting.

250. Applied Music—Advanced Individual Study (1)
For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. See explanation below for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of two units.

Piano
Organ
Voice
Flute
Oboe
Clarinet
Saxophone
Bassoon
Tuba
French Horn
Trumpet
Trombone
Baritone Horn
Percussion
Violin
Viola
Cello
Contrabass
Composition

252. Seminar in Music History (3)
Prerequisites: Music 152B and consent of instructor.

Seminars in music history are offered for intensive study in each of the historical eras listed below.

A. Music of the Middle Ages and Renaissance
B. Music of the Baroque Era
C. Music of the eighteenth and nineteenth centuries
D. Twentieth century music

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

NURSING

IN THE DIVISION OF THE LIFE SCIENCES

(Agency Member of the National League for Nursing)

Faculty

Professor: Nye, N. (Chairman)

Associate Professors: Coveny, Moses

Assistant Professors: Atkinson, Coakley, Ganong, Gilchrist, Johnson, E., Lee, P., Moore, M., Nelson

Offered by the Department

Major in nursing with the B.S. degree in applied arts and sciences. (Described in the section of this catalog on the General Programs.)

Courses offered for graduate nurses.

LOWER DIVISION COURSES

1. Orientation to Nursing (1) I
One lecture. No prerequisite.

An introduction and orientation to the profession of nursing. Considers ethical principles, the nurses' code, and professional problems which will face the student nurse.

20. Fundamentals of Nursing (3) II
One lecture and six hours of laboratory.

Prerequisites: Zoology 8, Nursing 1, and concurrent registration in Zoology 9.

Fundamental principles and their application to the care of patients. (Formerly Nursing 20A.)

33A. Medical Nursing (5) I
Three lectures and six hours of laboratory.

Prerequisites: Nursing 20 and concurrent registration in Nursing 34A and in Microbiology 1 or Chemistry 3.

Principles and methods of application in meeting needs of adults with medical health problems.

33B. Medical Nursing (5) II
Two lectures and nine hours of laboratory.

Prerequisites: Nursing 33A, 34A, and concurrent registration in Microbiology 1 or Chemistry 3.

Continuation of Nursing 33A.

34A. Surgical Nursing (5) I
Two lectures and nine hours of laboratory.

Prerequisites: Zoology 9, Nursing 20, and concurrent registration in Nursing 33A and in Microbiology 1 or Chemistry 3.

Introduction of principles and methods of application used to meet nursing needs of adults with surgical health problems. (Formerly Nursing 34.)

34B. Surgical Nursing (5) II
Three lectures and six hours of laboratory.

Prerequisites: Nursing 33A, 34A, and concurrent registration in Nursing 33B and in Microbiology 1 or Chemistry 3.

Continuation of Nursing 34A. (Formerly Nursing 115.)

36. Community Nursing (2) I
Prerequisite: Nursing 20.

A study of social and health agencies and how they meet the nursing needs of individuals and families in the hospital, home, and community.

UPPER DIVISION COURSES

Courses numbered 150 to 160 are open only to graduate nurses.

112. Obstetric Nursing (5) I, II
Two lectures and nine hours of laboratory.

Prerequisites: Nursing 33B and 34B.

Study of care and treatment of the obstetric patient and newborn infant.

114. Pediatric Nursing (5) I, II
Two lectures and nine hours of laboratory.

Prerequisites: Nursing 33B and 34B and credit or concurrent registration in Psychology 106.

Nursing care of infants and children; prevention and control of disease; and instruction of parents.

116. Trends in Nursing (2) I
Prerequisite: Nursing 1.

Nursing from earliest times; emphasis on the place of nursing in world history and the present social order. (Formerly Nursing 130.)

118. Psychiatric Nursing (5) I, II

Two lectures and nine hours of laboratory.

Prerequisites: Nursing 33B and 34B and credit or concurrent registration in Psychology 131.

Major concepts of psychiatric nursing and mental health that are involved in care of the mentally ill; therapies and rehabilitation measures.

124. Leadership Roles in Nursing (4) I, II

Two lectures and six hours of laboratory.

Prerequisite: Nursing 116.

Professional and legal responsibilities of the nurse; selected practice activities in the role of team leader.

125. Public Health Nursing (4) I, II

Prerequisite: Nursing 36 and credit or concurrent registration in Nursing 126.

Principles of Public Health Nursing and organization and administration of health services.

126. Public Health Nursing Practice (5) I, II

Fifteen hours of laboratory.

Prerequisites: Nursing 36 and credit or concurrent registration in Nursing 125.

Guided public health nursing practice in community health agencies, out-patient clinics, schools and homes.

Courses for Graduate Nurses

152. In-service Instruction (2) II

Prerequisite: R.N. certificate.

Application of the principles and methods of teaching in the various clinical services.

160. Nursing in School Health Services (3) II

Prerequisite: Nursing 125, or equivalent to be determined by examination.

The application of health principles and current best practices in schools with emphasis on the functions of the school nurse related to the school, home, and community.

Individual Study

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of the instructor.

OCEANOGRAPHY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Associate Professor: McBlair.

UPPER DIVISION COURSES

100. The Oceans (2) I

Prerequisites: Introductory courses in life and physical sciences.

Biological and physical aspects of the oceans and their significance to man; problems of modern oceanography.

PHILOSOPHY

IN THE DIVISION OF THE HUMANITIES

Faculty

Professors: Ruja, Shields
Associate Professor: Nelson, S. (Chairman)
Assistant Professors: Anderson, A., Crawford, P., McClurg, Snyder, Weissman

Offered by the Department

Master of arts degree with a major in philosophy. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in philosophy with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.

Minor in philosophy. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1A-1B. Introduction to Philosophy (3-3) I, II
Prerequisite: Philosophy 1A, or consent of instructor, is prerequisite to 1B.
The place of philosophy in intelligent living. The methods, areas, and significance of philosophical inquiry. Each student is encouraged to think independently and formulate his own tentative conclusions. In Philosophy 1A, emphasis is placed upon problems of value. In Philosophy 1B, emphasis is placed on problems of knowledge and reality.

20. Logic (3) I, II
Introduction to deductive and inductive logic. Logic and language. Analysis of fallacies. Uses of logic in science and in daily life.

UPPER DIVISION COURSES

NOTE: At least three units of philosophy are prerequisite to all upper division courses in philosophy. Equivalents for the prerequisites stated may be accepted at the discretion of the instructor.

101. History of Philosophy I (3) I, II
Prerequisite: Six units of philosophy or the equivalent in other areas.
Thales through Marcus Aurelius.

102. History of Philosophy II (3) II
Prerequisite: Philosophy 101.
Plotinus through William of Occam.

103. History of Philosophy III (3) I, II
Prerequisite: Philosophy 101.
Nicholas of Cusa through Kant.

104. History of Philosophy IV (3) I
Prerequisite: Philosophy 103.
Fichte through Royce.

105. Contemporary Philosophy (3) II
Prerequisite: Philosophy 1B.
Major philosophical issues, movements, and figures in American and European philosophy of the twentieth century. (Formerly Philosophy 101.)

108. Recent Existentialism (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
An examination of the philosophical aspects of Existentialism. Major emphasis is on the diversity of thought within a common approach as this is shown in individual thinkers. (Formely Philosophy 103.)

112. Political Philosophy (3) II
Prerequisite: Philosophy 1A.
A critical inquiry into selected aspects of the political structures within which we live, such as law, power, sovereignty, justice, liberty, welfare.

121. Deductive Logic (3) I
Prerequisites: Philosophy 20 or Mathematics 60.
Principles of inference for symbolic deductive systems; connectives, quantifiers, relations and sets. Interpretations of deductive systems in mathematics, science, and ordinary language. Not open to students with credit in Mathematics 155.

122. Inductive Logic (3) II
Prerequisite: Philosophy 20.
Definition, classification, and division. The logic of experimentation and statistics. Formation and validation of hypotheses. Probability theories.

123. Theory of Knowledge (3) I
Prerequisite: Philosophy 1B.
A critical study of the major theories of human knowledge: mysticism, rationalism, empiricism, pragmatism.

125. Metaphysics (3) II
Prerequisite: Philosophy 1B.
Explorations of prominent theories of reality, e.g., realism and nominalism, materialism and idealism, teleology and determinism.

127. Values and Social Science (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.
Analysis and discussion of the nature of values and value-judgment with particular reference to the social sciences. Among relevant issues: the naturalistic fallacy, facts and values; authoritarianism, emotivism, objective relativism; the individual and the community.

128. Theory of Ethics (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A study of significant and typical value theories and systems and of the concrete problems such theories seek to explain. The emphasis will be placed on moral values. The student will be encouraged to examine critically his own system of values.

129. Social Ethics (3) I
Prerequisite: Philosophy 1A.
Ethical isues of contemporary life. Individualism vs. collectivism; democracy vs. dictatorship; ethical problems arising in law, medicine, business, government, and interpersonal relationships.

131. Philosophy of Language (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.
An introduction to theories of meaning for natural languages and formal systems; concepts of truth, synonymy and analyticity; related epistemological and ontological problems.

132. Philosophy of History (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
A critical examination of the nature of history and historical inquiry. As metaphysics: a study of theories of historical development. As methodology: history as science, truth and fact in history, historical objectivity, the purpose of history.

134. Philosophy of Literature (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.
Study of literature of philosophical significance, and of philosophical problems of literature. Representative works of rationalism, realism, romanticism, existentialism and other modern directions of thought are considered with regard to both their intellectual and literary principles.

135. Philosophy of Religion (3) I, II
Prerequisite: Six units of philosophy or the equivalent in other areas.
An impartial survey of religious thought and practice in the major world religions; exploration of issues raised by the history, psychology, and sociology of religion.

136. Philosophy of Art (3) II
Prerequisite: Six units of philosophy or the equivalent in other areas.

The nature of esthetic experience. The principal theories of art, both traditional and contemporary, are studied at length, both in relation to actual artistic production and to the role of art in society.

137. Philosophy of Science (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.

A critical examination of the basic concepts and methods underlying contemporary scientific thought. Contributions of the special sciences to a view of the universe as a whole.

150A-150B. Asian Thought (3-3)
Prerequisite: Six units of philosophy or the equivalent in other areas.

The religious and philosophical modes of thought and ways of life of the Orient. First semester: India and Southeast Asia. Second semester: China and Japan.

164. American Philosophy (3) I
Prerequisite: Six units of philosophy or the equivalent in other areas.

A systematic and critical study of the work of American philosophers from the Puritans through the Pragmatists. Major emphasis is placed upon Pierce, James, Royce, Santayana, Dewey, and Whitehead.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisites: 12 upper division units in philosophy and consent of instructor.

GRADUATE COURSES

200. Seminar in Plato (3)
Prerequisite: 12 units of upper division work in philosophy.

An intensive study of the major dialogues.

201. Seminar in Aristotle (3)
Prerequisite: 12 units of upper division work in philosophy.

An intensive study of the major Aristotelian writings.

207. Seminar in Kant (3)
Prerequisite: 12 units of upper division work in philosophy.

Kant's critique of the foundations of human knowledge, moral obligation, and religious faith, with readings from the three *Critiques* but with special emphasis upon the *Critique of Pure Reason.*

210. Seminar in Contemporary Philosophy (3)
Prerequisite: 12 units of upper division work in philosophy.

Significant philosophical movements and figures of the 20th century.

223. Seminar in Epistemology (3)
Prerequisite: 12 units of upper division work in philosophy.

An examination of some of the basic problems concerning meaning, perception, and knowledge. Readings in the works of leading contemporary philosophers, such as C. I. Lewis and Bertrand Russell.

225. Seminar in Metaphysics (3)
Prerequisite: 12 units of upper division work in philosophy.

An inquiry into the search for significant qualities of reality.

228. Seminar in Ethics (3)
Prerequisite: 12 units of upper division work in philosophy.

Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson, and Toulmin.

235. Seminar in Philosophy of Religion (3)

Prerequisite: 12 upper division units in philosophy including Philosophy 135 or its equivalent.

A philosophical investigation of the nature of religious thought: its structure, growth, and significance.

236. Seminar in Philosophy of Art (3)

Prerequisite: 12 units of upper division work in philosophy.

An analysis, criticism, and comparative study of selected philosophies of art.

262. Studies in Continental Rationalism (3)

Prerequisite: 12 upper division units in philosophy.

An intensive study of selected texts from Descartes, Spinoza, and Leibniz. (Formerly offered as Philosophy 162.)

263. Studies in British Empiricism (3)

Prerequisite: 12 upper division units in philosophy.

An intensive study of selected texts from Locke, Berkeley, and Hume. (Formerly offered as Philosophy 163.)

298. Special Study (1-6)

Individual study. Maximum credit six units.

Prerequisites: 12 units of upper division work in philosophy and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL EDUCATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Men's Department

Professors: Benton, Governali (Chairman), Kasch, Scott, Terry, Ziegenfuss

Associate Professors: Broadbent, Coryell, Olsen, A., Schutte, Smith, C.R., Sportsman

Assistant Professors: Carter, Olsen, L.

Instructors: Bass, Wells

Lecturer: Beekley

Women's Department

Emeritus Faculty: Schwob, Tanner

Associate Professors: Lockman, Murphy, M. (Chairman), Tollefsen

Assistant Professors: Andrus, Barone, Cave, Fox, Lewis, Wilhelm, Williamson

Lecturer: Iverson

Offered by the Departments

Master of arts degree for teaching service with a concentration in physical education. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physical education with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in physical education. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

REQUIRED ACTIVITY COURSES

To meet general education requirements, all freshman and sophomore students must enroll in an activity course each semester. Four semesters of activity courses are required. Two units are needed for general education and graduation, but no more than one activity course in any one semester may be counted toward this requirement. An activity course taken in the summer session may be counted in lieu of one taken during the fall or spring semester.

Exemptions or Postponements

Veterans who have served a minimum of one continuous year in the United States armed forces are exempted from the general education requirement in physical education. Students carrying fewer than 12 units during any semester may apply to the chairman of the Physical Education Department for a postponement of the physical education activity requirement. For reasons of health, the Director of Health Services may postpone the enrollment of a student in a physical education activity course. Permanent postponement from the activity requirement will not be made and a postponement does not eliminate the graduation requirement.

Types of Activity Courses

A health history record is required of each student entering college. Adapted physical education classes to care for special needs are offered. The content of the required courses is planned to give each student an opportunity to participate in many activities of carry-over value, developmental nature, and recreational interest. An opportunity is afforded students to participate in competitive sports and intramural programs.

MEN'S ACTIVITY COURSES

Physical Education 1 is the basic orientation course required of all entering male freshmen. College transfers are exempt from Physical Education 1. All male students must take 2 (or 5), 3, and 4. Credit for transfer students will be appropriately evaluated.

Activity courses 1, 2, 3, 4, and 5 are general education courses which fulfill the general education requirement. Each course is taken for one-half unit and meets two hours per week.

A student may be excused from regular physical education activity on the recommendation of Health Services or the chairman of the Department of Physical Education. A student so excused will be assigned to Individual Adaptation sections offered in Physical Education 1, 2, 3, and 4.

Courses

1. Physical Education (½) I, II

A choice of vigorous, competitive activity; boxing, gymnastics, soccer, conditioning with weights, track, or wrestling. Physical fitness emphasis. Tests are administered for appropriate student placement in future physical education classes.

2. Physical Education (½) I, II

Beginning swimming, intermediate swimming, or advanced aquatics. Second or third semester course.

3. Physical Education (½) I, II

A choice of activity: archery, beginning badminton, basketball, boxing, beginning dance, golf, gymnastics, soccer, or beginning tennis. Second or third semester course.

4. Physical Education (½) I, II

A choice of activity: advanced badminton, bowling, conditioning by training with weights and other related devices, advanced dance, fencing, handball, advanced tennis, track and field, volleyball, or wrestling.

5. Physical Education (Alternate) (½) I, II

May be taken in lieu of Physical Education 2. Students may select any activity in Physical Education 3 or 4. (See department chairman.)

10. Physical Education (Elective) (½) I, II
An elective for students interested in pursuing further their physical education activities. Students may repeat this course for credit. This course is not a general education course and therefore does not satisfy the physical education requirement. (See department chairman.)

Intercollegiate Sports

An intercollegiate sport is not a general education course and therefore does not satisfy the physical education requirement. Courses in intercollegiate sports meet 10 hours per week.

30. Baseball (½) II
31. Basketball (½) I
32. Cross Country (½) I
33. Football (½) I
34. Golf (½) II
35. Gymnastics (½) II
36. Tennis (½) II
37. Track (½) II
38. Wrestling (½) II
39. Swimming (½) II
40. Rowing (½) II
41. Water Polo (½) I

WOMEN'S ACTIVITY COURSES

General Education Activity Courses

Courses offered for one-half unit credit meet two hours per week. An activity course may be taken for credit only once.

1A-1B. Fundamental Skills (½-½) I, II

2A-2B. Folk, Square, and Round Dancing (Men and Women) (½-½) I, II
2A is prerequisite to 2B.

3A-3B. Modern Dance (Men and Women) (½-½) I, II
3A is prerequisite to 3B.

4A. Gymnastics and Related Activities (½) I, II

4B. Intermediate Gymnastics (½) I, II
Prerequisite: Physical Education 4A or consent of instructor.

5A. Soccer, Speedball, Hockey (½) I, II

5B. Softball, Volleyball (½) I, II

6. Basketball (½) I, II

11. Ballroom Dancing (Men and Women) (½) I, II

12A. Advanced Modern Dance (Men and Women) (1) I, II
Four hours.
Prerequisites: P.E. 3A and 3B (except for physical education majors who are not required to take 3B).
Skill techniques, rhythmic form and analysis. Materials of design and group composition. Criticism of student sketches, studies and completed dances.

12B. Advanced Modern Dance (Men and Women) (1) I, II
Four hours.
Prerequisite: P.E. 12A.
Advanced skill techniques and group choreography. The use of percussion instruments and various forms of accompaniment. Discussion, lectures, practice.

13A-13B. Archery (½-½) I, II

14A-14B. Badminton (Men and Women) (½-½) I, II

15A-15B. Fencing (½-½) I, II
Prerequisite: P.E. 15A is prerequisite to 15B.

16A-16B. Golf (½-½) I, II

18A. Tennis (Beginning) (½) I, II

18B. Tennis (Intermediate) (Men and Women) (½) I, II

19. Bowling (Men and Women) (½) I, II

20A-20B. Swimming (Men and Women) (½-½) I, II

24. Hiking (Men and Women) (½) I, II

MEN AND WOMEN

PROFESSIONAL THEORY COURSES

LOWER DIVISION COURSES

50. Life Saving (1) I, II

Three hours per week.

Standard American Red Cross course in life saving and water safety, designed to qualify superior swimmers for Senior Life Saving Certificate.

53. Physical Education in the Elementary School (3) I, II

Two lectures and two hours of laboratory.

The state program in physical education for the elementary school forms the basis of the course, including selection of materials, methods and techniques of teaching and practice in skills. Candidates for the elementary credential are required to take this course. Not open to freshmen or students with credit in Physical Education 74 or Recreation 74.

56A-56B. Professional Activities (Women) (1-1)

Four hours of laboratory.

Team sports for women approached through a study of competencies, skills, and knowledge needed for teaching.

57. Officiating Women's Sports (1) I

Three hours of laboratory per week.

Prerequisite: Physical Education 56A.

Practice in officiating techniques in women's sports leading to official's ratings in each of the following sports: volleyball, basketball, tennis, and softball.

61. Professional Activities: Orientation and Guidance (Men) (1) I, II

Designed for the orientation and guidance of major students in physical education. Course must be taken during the first semester of enrollment in the major at San Diego State (transfer major students included).

63. Professional Activities: Dance (Men) (2) I, II

(Same course as Recreation 63)

Five hours of lecture and laboratory.

Practice in the skills and techniques of the dance, and experience in the organization and presentation of dance materials. Not open to students with credit in Recreation 63.

64. Professional Activities: Combatives (Men) (2) I, II

Six hours of lecture and laboratory.

The acquisition of skills and teaching techniques, and the development of knowledge and interest in the combative activities, primarily wrestling and boxing.

72. Introduction to Physical Education (2) I, II

History and principles of physical education and sports. Study of the objectives of modern physical education with a view toward the development of a basic philosophy and background for professional education.

74. Elementary School Physical Education Activities (2) I, II

(Same course as Recreation 74)

Physical education activities designed for the elementary school child; emphasis on the organization, supervision, and evaluation of the physical education program in the elementary school. Not open to students with credit in Physical Education 53 or Recreation 74.

UPPER DIVISION COURSES

122. Water Safety Instruction (1) II

Four hours of lecture and laboratory.

Prerequisites: P.E. 20B or equivalent, and current American Red Cross Senior Life Saving Certificate.

Methods and materials for teaching swimming. Course designed to qualify expert swimmers for American Red Cross Swimming Instructors Certificate.

141. Professional Activities: Gymnastics (Men) (2) I, II

Six hours of lecture and laboratory.

Prerequisite: Consent of instructor.

The development of skills and teaching techniques in gymnastics, with emphasis on tumbling, apparatus activities, self-testing and calisthenics in the school program. Consideration of organizing, conducting, and officiating gymnastics meets.

142. Professional Activities: Swimming (Men and Women) (1) I, II

Four hours of lecture and laboratory.

Prerequisite: P.E. 20B or equivalent.

The development of skills in swimming, with emphasis on the teaching techniques. Scope of course is from beginning swimming to life saving techniques.

143. Professional Activities: Coaching Track (Men) (1) I

Two hours of lecture and laboratory.

Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy and organization.

144. Professional Activities: Coaching Baseball (Men) (1) II

Two hours of lecture and laboratory.

Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

145. Professional Activities: Team Sports (Men) (2) I, II

Six hours of lecture and laboratory.

The skills, rules, teaching techniques, officiating, and organization of materials in such sports as soccer, touch football, softball, speedball, basketball and volleyball.

146. Professional Activities: Individual Sports (Men) (2) I, II

Six hours of lecture and laboratory.

The skills, rules, teaching techniques, officiating, and organization of materials in such sports as handball, tennis, badminton, archery and golf.

147. Professional Activities: Coaching Football (Men) (1) II

Two hours of lecture and laboratory.

Organization of practice sessions and drills for developing fundamental skills and special abilities, study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

148. Professional Activities: Coaching Basketball (Men) (1) I

Two hours of lecture and laboratory.

Organization of practice sessions and drills for developing fundamental skills and special abilities; study of rules and officiating techniques; consideration of scheduling problems, coaching techniques and game strategy.

151. Professional Preparation in Folk and Social Dancing (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 2B and 11, or completion of folk and social dancing competencies tests.

Folk customs, festivals, and costumes. Selection of dance materials for various age groups. Analysis of teaching techniques. (Formerly entitled: Folk Dance Materials and Advanced Techniques—Women.)

152. Professional Preparation in Gymnastics (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 4A and 4B, or completion of competencies tests in gymnastics and related fields.

Advanced materials in tumbling and gymnastics with emphasis on safety devices, spotting, etc. Analysis of teaching techniques and progressions.

153A-153B. Problems in Modern Dance (Men and Women) (2-2)

Four hours of lecture and laboratory

Prerequisite: P.E. 12B or consent of instructor. 153A is prerequisite to 153B.

The construction and critical evaluation of the more complex forms of choreography.

154. Professional Preparation in Modern Dance (3) I

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 3A and 3B, or completion of competencies tests in modern dance.

Advanced skill techniques with emphasis on individual choreography. Selection of materials and course planning for the secondary schools class teaching experience. Brief survey of basic literature and current readings in the field. (Formerly P.E. 154A-154B, Methods of Teaching Modern Dance.)

155. Professional Preparation in Individual Sports (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 134A, 14A, 16A, and 18A, or completion of competencies tests in archery, badminton, golf, and tennis.

Review of individual playing techniques, knowledge, rules, and teaching methods in tennis, badminton, archery, and golf. Designed for senior majors in physical education who are expected to demonstrate a high degree of competency in the sports indicated. (Formerly entitled: Techniques of Individual Sports—Women.)

156. Professional Preparation in Team Sports (Women) (3) II

Two lectures and three hours of laboratory.

Prerequisites: Physical Education 56A and 56B, or completion of competencies tests in basketball, hockey, soccer, speedball, softball and volleyball, and track and field.

Analysis of skills, teaching techniques, officiating, and the organization of materials in team sports for women. (Formerly P.E. 156A-156B, Methods of Teaching Team Sports—Women.)

157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3)

Two lectures and three hours of laboratory.

Prerequisite: Consent of instructor.

Experimentation in the dance, relating contemporary theories to other art forms. The study of force and time-space relationships as factors in choreography. Production problems.

160. Mechanics of Body Movement (Women) (3) II

Three hours of lecture and laboratory.

Prerequisite: Physical Education 167.

Efficient use of the body in daily living; evaluation and classification of exercises, study of methods, and practice in planning and presenting material. (Formerly entitled: Teaching of Body Mechanics—Women.)

161. Instructor's Course in First Aid (2) I, II

Three hours of lecture and laboratory.

Instructor's course in first aid, as outlined by the American Red Cross. Standard first aid techniques, care of injured, certification and record keeping, and practical work in first aid.

162. Measurement and Evaluation in Physical Education (3) I, II

Intensive study of existing skills, tests, and other forms of evaluation used in physical education programs, including practical measuring and comparisons with norms, standards, etc. Closely related to required competencies tests for physical education majors with applications to use in teaching.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

167. Applied Anatomy and Kinesiology (3) I, II
Prerequisites: Zoology 8 and 22.
Anatomical and kinesiological analysis of human structure and movement. Application of analysis relative to mechanical principles as influenced by efficiency factors of body functions.

168. Physiology of Exercise (3) I, II
Prerequisites: Zoology 8 and 22.
A nonlaboratory course emphasizing the relation of physiology to muscular exercise in physical activities.

169. Adapted Activities (3) I, II
Three lectures and two hours of laboratory.
Prerequisites: Zoology 8, 22, and P.E. 167.
The adaptation of programs for the atypical individual, including physical examinations, training and prescribed exercises, followup, instructional problems, and evaluation.

170A-170B. Recreation Leadership (3-3)
(Same course as Recreation 170A-170B)
Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes recreational arts and crafts, dramatics, social recreation, and music. Neither course is prerequisite to the other.

175. Workshop in Physical Education (Men and Women) (1-2)
Methods, techniques and development of skills in such areas as aquatics, combatives, gymnastics, rhythms and dance, and individual and team sports. Designed for secondary school administrators, teachers, coaches, recreation and youth leaders. May be repeated for a total of six units.

190. Administration of Physical Education in the Secondary School (3) I, II
Problems and practices in the organization and administration of the secondary school activity program. Study, selection and adaptation of activities, examination and grouping of pupils, use and evaluation of tests. Selection and maintenance of equipment and facilities.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of special study adviser.

GRADUATE COURSES

200. Evaluation Procedures in Physical Education, Health Education and Recreation (3) I
(Same course as Health Education 200)
A study of tests and measurements in the profession, with practice in their construction and use, and interpretation of results.

201. Developmental Physical Education (3)
Prerequisite: P.E. 167.
Intensive study of postural divergencies, lack of physical development, and methods of correcting such conditions through exercise. Practice in making physical examinations, constructing individual exercise programs, and teaching remedial exercises. Consideration of ethical procedures and limitations.

203. Problems in Physical Education (3)
A survey of current problems facing the physical education profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required.

204. Problems in Recreation (3)
(Same course as Recreation 204)
A survey of current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school and community situations. Analysis and evaluation of actual problems. Written reports required.

205. Curriculum in Physical Education and Health Education (3)
(Same course as Health Education 205)
Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation.

210. Seminar in Facilities for Physical Education (3)
Prerequisite: Major or minor in physical education.
Individual study of problems related to the planning, development and maintenance of physical education and athletics facilities.

211. Seminar in Competitive Athletics for Men (3)
Prerequisite: Major or minor in physical education.
Knowledge and appreciation of the skills, techniques and teaching methods involved with the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

212. Seminar in History and Philosophy of Physical Education (3)
Prerequisite: Major or minor in physical education.
The historical and philosophical forces guiding the development of physical education from ancient to modern times.

213. Seminar in Women's Physical Education (3)
Prerequisite: Major or minor in physical education.
An intensive study of selected areas of the women's physical education program.

214. Seminar in Dance Programs (3)
Prerequisite: Major or minor in physical education.
Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCE

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Professor: Stewart, P.

Associate Professors: Merzbacher, Nelson, B.

Assistant professor: Ziegelmaier

Offered by the Division of Physical Sciences

Master of arts degree in the physical sciences for teaching service. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physical science with the A.B. degree in applied arts and sciences for students admitted to teacher education. (Described in the section on the General Programs.)

Minor in physical science for students admitted to teacher education. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

COURSES IN PHYSICAL SCIENCE

The courses listed below are designed to explore critically topics and concepts in the physical sciences selected for their challenge and significance, and presented in terms of their historical and intellectual development. While of importance to the specialist in science, these courses are of particular value to students in other major fields who seek to broaden and deepen their comprehension of the theoretical as well as the empirical aspects of science, especially as related to their own field of specialization and to contemporary problems and endeavors. This approach to the fundamentals of science is not emphasized elsewhere.

LOWER DIVISION COURSES

1. Principles of Physical Science (3) I, II

The nature of the physical universe, with emphasis on the whole field of physical science rather than on its separate divisions. May be followed by or, preferably, taken with Physical Science 4 for laboratory credit in the natural science area of general education. Not open to students with credit for or concurrent registration in Physical Science 5 or a college lecture course in physics or astronomy.

2. Principles of Physical Science (3) I, II

Continuation of Physical Science 1, which course is a recommended but not a required prerequisite. Not open to students with credit for or concurrent registration in Physical Science 5 or a college lecture course in chemistry or geology.

4. Experimental Methods in Physical Science (1) I, II

Three hours of laboratory.

Prerequisite: Credit for or concurrent registration in Physical Science 1 or 5. Methods in physical science as illustrated by the use of significant examples from the various disciplines. The technique of observation, measurement, and discovery of relationships.

5. Fundamentals of Physical Science (3) I, II

Topics selected from Physical Science 1 and 2 to give a single course for the benefit of those students intending to take only one semester of physical science. May be followed by or, preferably, taken with Physical Science 4 for laboratory credit in the natural science area of general education. Not open to students with credit for or concurrent registration in a college lecture course in astronomy, chemistry, geology, physics, or physical science.

UPPER DIVISION COURSES

120. Physical Science for Elementary Teachers (3) II, Summer

An integrated study of the physical sciences for teachers in order to provide a broad background of information, a consideration of current developments, and an opportunity for individualized work. Enrollment limited to those in training for or engaged in teaching in the elementary schools.

130. Modern Physical Science (3) II

Recent and current developments in the physical sciences. Discussions concerning such phenomena as radioactivity, cosmic rays, nuclear energy, tracer techniques, radio telescopy, supergalaxies. Not open for credit to physics majors.

140S. Contemporary Problems in Physical Science (1) Summer

A series of six weekly lectures on varied aspects of physical science by scientists engaged in research. Reading and reports required of students enrolled for credit. May be repeated to a total of three units. These lectures are open to the public.

150. Readings in Physical Science (3) I

Reading of selected materials with informal class discussion of topics. Emphasis on the historical background, the philosophical implications, and the impact of science on our thought and culture.

GRADUATE COURSES

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced physical science. May be repeated with new subject matter for additional credit.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis in one of the physical sciences for the master's degree.

PHYSICS

IN THE DIVISION OF THE PHYSICAL SCIENCES

Faculty

Emeritus Faculty: Baird

Professors: Garrison, Moe (Chairman), Skolil, Smith, L. E., Teasdale

Associate Professors: Morris, R., Wolter

Assistant Professors: Beauchamp, Bolte, Clark, O., Craig, Dessel, Rehfuss, Templin, Terhune

Instructors: de Plomb, McArdle, Schneider, W.

Lecturers: Colwell, Ehricke, Kalbfell, Medved, Nichols, M., Norris, Snodgrass

Offered by the Department

Master of arts or master of science degree in physics; and a master of arts degree for teaching service with a concentration in physics. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in physics with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in physics with the A.B. or B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in physics. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

Note: A maximum of 15 units of lower division physics credit may be applied toward the A.B. or B.S. degree.

2A-2B. General Physics (3-3) I, II

Lectures, demonstrations and discussions.

Prerequisites: Two years of high school mathematics. Physics 2A is prerequisite to 2B. Recommended: Concurrent registration in Physics 2A and 3A, and in Physics 2B and 3B.

This course is for liberal arts and certain preprofessional students who do not desire intensive physics preparation. 2A properties of matter, mechanics, heat, and sound; 2B, light, electricity, magnetism, and atomic physics.

3A-3B. Physical Measurements (1-1) I, II

Three hours of laboratory.

Prerequisite for 3A: Credit or concurrent registration in Physics 2A.

Prerequisite for 3B: Physics 3A and credit or concurrent registration in Physics 2B.

A laboratory course to accompany Physics 2A-2B. 3A: properties of matter, mechanics, heat and sound. 3B: electricity, magnetism, and light.

4A-4B-4C. Principles of Physics (4-4-4) I, II

Three hours of lecture and three hours of laboratory.

Prerequisite for 4A: Credit or concurrent registration in Mathematics 50.

Prerequisites for 4B: Physics 4A with a grade of C or better and credit or concurrent registration in Mathematics 51.

Prerequisites for 4C: Physics 4B with a grade of C or better and credit or concurrent registration in Mathematics 52.

This course is designed to give a thorough understanding of the fundamental principles of physics in the areas of mechanics, wave motion, heat, electricity, and light.

5. Practical Physics (4) II

Three lectures and three hours of laboratory.

Everyday application of physics in heating, lighting, insulating, cooking, nursing, refrigeration, air-conditioning, sound, music, mechanical and electrical appliances. Not open to students with credit for Physics 2A, 2B, 4A, 4B, or 4C.

73. Introductory Electronics (3) I, II

Prerequisite: Physics 4B.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 103.

UPPER DIVISION COURSES

101. Modern Physics (3) I, II

Prerequisite: Physics 4C or equivalent.

Modern developments in physics, including an introduction to the quantum and relativity theories, and to the fields of atomic, nuclear and solid state physics.

103. Basic Electronics (3) I, II

Prerequisites: Physics 4C; or 2B and 3B and a working knowledge of the calculus.

A qualitative study of electron tubes and electronic systems. Not open to students with credit in Physics 73.

105. Analytical Mechanics (3) I, II

Prerequisites: Physics 4C and Mathematics 119.

Principles of Newtonian mechanics developed through the use of vector methods. Statics and dynamics of particles and rigid bodies.

106. Optics (3) II

Prerequisites: Physics 4C, or Physics 2B and 3B.

A study of reflection, refraction, dispersion, interference, diffraction, double refraction and polarization, with applications to optical instruments. Also wave propagation, radiation, spectra and the nature of light.

110. Electricity and Magnetism (3) I, II

Prerequisites: Physics 4C, 73, and concurrent registration in Mathematics 119, or consent of instructor.

Analysis of direct and alternating current circuits using the operator "j" and circuit theorems; introduction to coupled circuits, resonance and transients. Electrostatics; dieletrics and conductors. Chemical, photo and thermal effects. Electromagnetism, and magnetic properties.

112. Thermodynamics and Kinetic Theory (3) I, II

Prerequisites: Physics 4C and Mathematics 52.

Thermal properties of matter, laws of thermodynamics, kinetic theory of gases, and an introduction to statistical mechanics.

114. Acoustics (3) I

Prerequisites: Physics 73, 105, and 110.

Wave motion and its application to the production, transmission and reception of sound. Development of acoustic circuits using electro-acoustic analogs.

120A-120B. Advanced Physical Measurements (2-2)
Six hours of laboratory.
Prerequisites: Physics 4C and either 73 or 103, or consent of instructor.
A year course stressing laboratory experiments and measurements chosen from all the major areas of physics.

121. Radiation Physics (3) I, II
Two lectures and three hours of laboratory.
Prerequisites: Physics 2A, 2B, 3A, and 3B.
X-rays, radioactivity, interactions of radiations with matter, and methods of measurement. May not be used in the physics major. Not open to students with credit in Physics 101.

122. Senior Physics Laboratory (2) I, II
Six hours of laboratory.
Prerequisite: Physics 120B or consent of instructor.
Advanced experimental measurements in the fields of classical and modern physics, such as: acoustics, optics, heat and thermodynamics, mechanics, electricity and magnetism, atomic and nuclear physics, analog computers and physical electronics. With consent of instructor and adviser the course may be repeated with new material to a maximum of four units.

126. Solid State Devices Laboratory (2) II
One lecture and three hours of laboratory.
Prerequisites: Physics 101, 120B, and 170.
Experiments with diodes, crystal rectifiers, transistors, transistor amplifiers, oscillators, modulators, wave-shaping and control circuits, magnetic and dielectric amplifiers, photoelectric and thermoelectric devices.

131. Astronautics (2) I
Prerequisites: Mathematics 119 and Physics 105 or their equivalents.
Applications of celestial mechanics to space flight with particular emphasis on the effect of velocity changes or errors on the vehicle orbit. Analysis of slow and fast energy transfer with tangential or intersecting departure and arrival.

135A-135B-135C. PSSC Physics (2-2-2)
One lecture and three hours of laboratory.
Prerequisites: Physics 2A-2B and 3A-3B or equivalents.
A new approach to the study of major concepts of physics. Designed for those who plan to teach science. The course is based on test and laboratory materials prepared by the Physical Science Study Committee.

148. Nuclear Physics Laboratory (3) II
One lecture and six hours of laboratory.
Prerequisites: Physics 120B and concurrent registration in Physics 151.
Techniques and instrumentation for the detection, identification and measurement of the properties of nuclear radiations and particles, and their use in the study of nuclear reactions.

151. Nuclear Physics (3) I, II
Prerequisites: Physics 112 and 190.
Nuclear phenomena, theory of the nucleus, cosmic rays, and high-energy reactions of particles.

152. Transients in Linear Systems (3) I
Prerequisites: Physics 110 and Mathematics 119, or consent of instructor.
Formulation and solution of equations of behavior of linear electrical and mechanical systems by the Laplace-transform method. Applications of the transform method to lumped parameter systems.

153. Servo-System Design (3) II
Prerequisites: Physics 73 and 152, or consent of instructor.
Regulatory systems, including servomechanisms by the Laplace Transform. System performance and stability. Practical components and examples of typical designs.

155. Analog Computers (3) II

Prerequisites: Physics 73, Mathematics 119, and 175, or consent of instructor.

Electronic integration and differentiation; solution of differential equations; multiplication, division and function generation; stimulation of mechanical systems varying with time, solution of typical problems; auxiliary equipment, layout of large installations.

156. Digital Computers (3) I

Prerequisites: Physics 73, Mathematics 7, 119, and 175, or consent of instructor.

The binary number system; electronic and magnetic flip-flop circuits; memory devices; programming; complete computer systems. Auxiliary equipment for inserting information and reading out results rapidly. Typical applications and limitations.

160. Circuit Analysis (3) I, II

Prerequisites: Physics 73 and 110.

Filter design, transmission lines, and network analysis.

163. Electronics Laboratory (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Physics 120B and concurrent registration in Physics 173A.

Dynamic tube and transistor characteristics, cathode ray oscillograph. One stage RC amplifier. One stage and multistage amplifiers including feedback. Equivalent circuits.

164. Applied Electronics Laboratory (2) I, II

One lecture and three hours of laboratory.

Prerequisites: Physics 163 and 173A, or consent of instructor.

An experimental study of chosen topics from: oscillators, multi-vibrators, waveshaping, filters, gating, modulation, demodulation, signal to noise ratio.

165. Microwave Measurements (2) I

One lecture and three hours of laboratory.

Prerequisites: Physics 163 and concurrent registration in 173B, or consent of instructor.

An experimental study of fundamentals in VHF, UHF, and microwave phenomena; coaxial lines, waveguides, resonant cavities. Microwave frequency generators, impedance, frequency, and power measurements.

166. Honors Course (Credit to be arranged) I, II

An individual study arrangement for students admitted to the Honors Program. Enrollment through the department chairman, subject to the approval by the Committee on Honors. Refer to the Honors Program.

167. Semiconductor Devices (3) I

Prerequisite: Physics 103.

Electrical conduction in solids; the Fermi function; semiconductor materials, contacts and junctions; diodes and transistors; circuits; other semiconductor devices. (Formerly entitled: Transistor Circuits.)

170. Electromagnetic Theory (3) II

Prerequisites: Physics 110 and credit or concurrent registration in Mathematics 175.

Electrostatics and magnetostatics treated by vector methods; Maxwell's equations, electromagnetic induction, radiation and wave propagation.

173A. Physical Electronics (3) I

Prerequisites: Physics 101, 110, 112, and Mathematics 175.

Conductors, Fermi model, thermionic, photoelectric, and field emission, contact potentials, space charge. Semiconductors, linear equivalent, circuits, elements of frequency and time domain analysis, linear feedback circuits.

173B. Physical Electronics (3) II

Prerequisites: Physics 160, 163, and 173A, each with a minimum grade of C.

Field approach to transmission lines, coaxial cables, wave guides, resonant cavities, stub matching, radiation and antenna phenomena, interaction of fields and electronic beams and power extraction from fields.

175. Advanced Mechanics (2) I
Prerequisites: Physics 105 and Mathematics 119.
Special theory of relativity, generalized coordinates, Lagrangian and Hamiltonian formulations, normal coordinates and theory of vibrations.

180. Solid State Physics (3) II
Prerequisites: Physics 170 and 190.
Elastic, thermal, electric, magnetic and optical properties of solids. Introduction to the energy band theory of solids, with applications to dielectrics, semi-conductors, and metals.

190. Introductory Quantum Mechanics (3) I
Prerequisites: Physics 101, 105, 112, Mathematics 119 and 175.
The physical basis of the quantum theory and its mathematical formulation in terms of Schroedinger's wave equation.

196. Advanced Physics (2 or 3) I, II
Prerequisite: Consent of instructor.
Selected topics in classical and modern physics. May be repeated with the approval of the instructor for a total of six units.

198A. Senior Report (1) I, II
One discussion period.
Prerequisite: An acceptable master plan for graduation within one year.
Selection and design of individual project; oral and written progress reports.

198B. Senior Report (2) I, II
Prerequisite: Physics 198A.
Laboratory work, progress reports, oral and written final reports. Six hours of laboratory per week.

199. Special Study (1-6) I, II
Individual study or laboratory work on a special problem in physics selected by the student. Each student will be assigned a member of the staff who will supervise his work. Credit, hours and topics to be arranged in each case. Six units maximum credit.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study of a selected topic in advanced physics. May be repeated with new subject matter for additional credit.

205. Theoretical Mechanics (3)
Prerequisite: Physics 175 or consent of instructor.
An intensive study of mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action.

210A-210B. Mathematics of Physics (3-3)
(Same course as Mathematics 210A-210B.)
Prerequisite: Admission into a master's degree program.
Selected topics from matrix theory, vector and tensor analysis, orthagonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.

214. Advanced Acoustics (2)
Prerequisite: Physics 114 or consent of instructor.
An intensive study of the acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures. Radiation and scattering. Electrical-mechanical-acoustical elements and circuits.

219. Statistical Mechanics (3)
Prerequisites: Physics 112, 175, and 190; or consent of instructor.
Foundations of Statistical Mechanics. Applications to Physical Systems. Includes classical and quantum statistics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.

225. Microwaves (2)
Prerequisite: Physics 165 or equivalent.

Generation and detection, propagation and attenuation in wave guides and ferromagnetic components. Nuclear resonance, radio and microwave spectroscopy, masers, atomic clock, radio astronomy.

231. Advanced Astronautics (2)
Prerequisite: Physics 131 or consent of instructor.

Special emphasis on perturbations due to inhomogeneity of the central force field.

240A-240B. Reactor Materials Technology (3-3)
Prerequisites: Physics 180, 190, and Chemistry 161.

A study of certain engineering, chemical, and nuclear properties of materials used in reactors, and of the influence of the reactor environment on these properties.

245A-245B. Reactor Theory (3-3)
Prerequisite: Physics 151 and 190.

Theory of chain reactions and their application to the operation of various types of reactors. Kinetics, theoretical design, and control of reactors in relation to the fundamental nuclear processes.

246. Problems in Reactor Design Parameters (3)
Concurrent registration in Physics 240B, 245B, and 248B required.

A combined seminar and group project course in which the class will be assigned a specific, detailed reactor problem. Subgroups will work on specific problems within the main reactor design problem.

248A-248B. Reactor Laboratory (2-2)
Prerequisites: Chemistry 161, Physics 148, and concurrent registration in Physics 245A-245B.

Measurement of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiation, neutron flux properties and temperature effects. Use of the reactor as an experimental tool.

251. Nuclear Physics (3)
Prerequisites: Physics 151, 175, and 190; or consent of instructor.

Applications of quantum theory to nuclear physics. Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.

260. Advanced Electronics (3)
Prerequisite: Physics 173B or consent of instructor.

Selected advanced topics in contemporary electronics.

261. Pulse and Digital Circuits (2)
Prerequisites: Physics 160 and 173B, or consent of instructor.

Analysis of multivibrators, time base generators, pulse transformers, blocking oscillators, delay lines, counting circuits, digital computer circuits, and transmission gates. Design of practical circuits.

270. Electromagnetic Theory (3)
Prerequisite: Physics 170 or consent of instructor.

Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.

275. Quantum Mechanics (3)
Prerequisites: Physics 151, 175, and 190; or consent of instructor.

The physical basis of quantum mechanics. Schroedinger's wave equation, and Heisenberg's matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods.

280. Theory of the Solid State (3)
Prerequisites: Physics 175, 180, and 190; or consent of instructor.

The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.

297. Research (Credit to be arranged)
Prerequisite: Consent of instructor.
Research in one of the fields of physics. Maximum credit six units applicable on a master's degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis in physics for the master's degree.

POLITICAL SCIENCE

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Bigger (Chairman), Generales, Janssen, Joy, Leiffer, Nigro, Wilcox
Associate Professors: Feierabend, Gripp, Kitchen, Padgett
Assistant Professors: Crain, Haak, Kahng, Kubanis
Lecturers: Earnest, L., Fletcher, Gans, Harmon, House, Moore, Swanson, Whitney

Offered by the Department

Master of arts degree with a major in political science; a master of arts degree for teaching service with a concentration in social science (political science); and a master of science degree in public administration. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in political science with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in public administration or in public personnel management with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in political science or in public administration. (Described in the section on the General Programs.)

Certificate (nondegree) in public administration. (Described in the section on Preprofessional and Nondegree Curricula.)

PROGRAMS FOR GOVERNMENTAL SERVICE

Students preparing to work in government service may wish to follow one of the programs named above, take minor work in political science or public administration, or advanced study for a master's degree. Also available is a program in Latin American Studies, offered by the Division of the Social Sciences.

PUBLIC AFFAIRS RESEARCH INSTITUTE

The Public Affairs Research Institute is an agency of San Diego State College. It is organized to conduct research on a nonprofit basis into community and governmental problems of a public and/or administrative nature. The institute is staffed by members of the faculty of San Diego State College and operates under the advisory supervision of a board appointed by the president of the college. Closely associated with the institute is the Public Administration Center with a specialized and growing collection of research materials. The institute engages in cooperative or joint research efforts with the various departments of instruction, institutes and research centers of the college. Administration of the institute is under a director.

GRADUATION REQUIREMENT IN AMERICAN INSTITUTIONS

The graduation requirement in American institutions, to include demonstration of competency in U.S. history, U.S. Constitution, and California government, may be met by satisfactory completion of appropriate tests and courses listed in one of the following groups:

(1) Political Science 71A and 71B.

(2) Political Science 115 and 142 or 143 or 148.

(3) Political Science 127A and 127B plus approved tests or courses on United States history, institutions and ideals.

For further information on American Institutions, refer to the section of this catalog on Graduation Requirements.

LOWER DIVISION COURSES

71A-71B. Introduction to American Government and Politics (3-3)

The origin and development, structure and operation of the government of the United States, national, state, and local. This year course meets the graduation requirements in American institutions, including U.S. history, Constitution, and California government. The first semester course, 71A, also meets the requirement in United States Constitution; the second semester course, 71B, meets the requirement in California state and local government.

Ordinarily not open to students with credit in History 17A-17B. Political Science 71A-71B may be taken by such students with consent of the chairman of the Political Science Department. Political Science 71A or 71B is not open to students with credit in Political Science 115.

90. Principles of Political Science (3) I, II

Principal concepts of political science, utilizing the theories of some of the great political philosophers and examples drawn from contemporary governments.

91. The Political Process (3) I, II

Analytical models and techniques for examination of the problems of decision making and control. Patterns of political action in various cultural contexts.

UPPER DIVISION COURSES

Political Theory (Group I)

105. American Political Thought (3) I, II

A survey of the development of American ideas concerning political authority from the period of colonial foundation to the present time.

111A-111B. Theory of the State (3-3)

Prerequisite: Political Science 111A is prerequisite to 111B.

The nature of the State, its organization and activities, and its relation to the individual and other states.

112. Modern Political Thought (3) I, II

Concepts concerning the nature of the state from Burke to the present.

Politics (Group II)

115. American Institutions (3) I, II

The principles of the Constitution of the United States of America, and a survey of the political and social institutions which have developed under the Constitution. Meets the graduation requirement in the United States Constitution and California state and local government. When taken with Political Science 142 or 143 or 148, will also meet requirements in American history, institutions, and ideals. Not open to students with credit in Political Science 71A or 71B.

116. American National Government (3) I, II

Prerequisite: Political Science 71A or 115.

An intensive examination of the primary institutions of the national government. Critical analysis of changing aspects of traditional relationships among the institutions of president, congress, and the judiciary.

120. Political Parties (3) I, II
A critical analysis of the political party as a part of the process of government; party organization and activities; nominating and campaign methods; theories and functions of the party system; party responsibility. Special emphasis will be placed upon the function of the two-party system in American government.

122. Propaganda and Public Opinion (3) I, II
(Same course as Journalism 132)
A study of the forces which mold the American public mind, the practice of propaganda, a description and analysis of public relations, pressure groups and their effect in American public life.

123-S. Contemporary American Politics (3) Summer
A consideration of a selected group of current major political problems in terms of their possible future implications and of their relationship to established American democratic principles and ideals.

124. Political Behavior (3)
Selected social and cultural factors affecting political behavior; role of groups in formation of political preference, participation, attitudes; voting behavior; emphasis on quantitative research data.

125. The Legislative Process (3) I, II
A detailed analysis of legislatures. Special attention will be devoted to the impact of dynamic factors on formal procedures.

127A.-127B. Constitutional Government (3-3)
Modern government and politics; its theoretical foundations, institutions, and problems. Emphasis will be on American experience with useful comparisons with other countries. Either semester may be taken first. This year course meets the graduation requirement in the United States Constitution. The second semester course, 127B, also meets the graduation requirement in California state and local government. (Formerly 107A-107B.)

128. Internship in Politics (2-6) I, II, Summer
Prerequisites: Political Science 120 and consent of instructor.
Students will be assigned selectively to functional areas of politics, such as political party headquarters, elective public offices and non-partisan political groups for work under joint supervision of activity heads and the course instructor. Participation will include project and internship conferences.

Public Law (Group III)

136. Administrative Law (3) II
The law of public office and public officers, powers of administrative authorities, scope and limits of administrative powers, remedies against administrative action.

138. Introduction to Jurisprudence (3) I
The development of legal systems and theories of the function of law.

139A-139B. American Constitutional Law (3-3)
Prerequisite: Political Science 139A is prerequisite to 139B.
Principles of American Constitutional law. Includes judicial review, the federal system, the separation of powers, the nature of selected Congressional powers, and the liberties protected by the constitution against national and state action. Meets the graduation requirement in the United States Constitution.

Public Administration (Group IV)

140. Introduction to Public Administration (3)
Administration of public services; organization and procedure in theory and practice; dynamics of public management; politics and administration; responsible bureaucracy.

142. State Government (3) I, II

A study of the political structure and its operation used in the carrying on of the functions exercised by the state; state-federal relations; state-local government relations; particular emphasis on California government. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American History, institutions, and ideals, and in the U.S. Constitution.

143. Municipal and County Government (3) I

A study of the organization and its operation used to carry into effect the functions assigned to local governmental units; particular emphasis upon local government in California. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American history, institutions, and ideals, and in the U.S. Constitution.

144. Introduction to Public Personnel Administration (3) I, II

Prerequisite: Consent of instructor.

An introduction to the field, giving general coverage of the problems involved in recruitment, placement, supervision, etc., of public employees.

145. Human Factors in Management (3) I, II

Prerequisite: Political Science 144.

Organizations as social systems; power and authority; communication, motivation and leadership; impacts of technology on management and workers, resistance to change; human needs and the imperatives of management. Not open to students with credit in Business Administration 145.

146. Wage and Salary Administration (3) I

Prerequisite: Political Science 144.

Major problems in the determination and control of compensation from employment. Comparison of underlying theory to current practice. Not open to students with credit in Business Administration 142.

147. Government and Public Policy (3)

Theory and practice of process of formulating public policy; roles of administrators, legislators, courts, interest groups, and political parties; public agencies and public interest; case studies in formulating public policies.

148. The Government of Metropolitan Areas (3) I, II

A study of the governmental problems of metropolitanism; overlapping of governments, services, planning and financing. The use of intergovernmental contracts for public service, proper public service areas, and special authorities. This course meets the graduation requirement in California state and local government. When taken with Political Science 115, will also meet requirements in American History, institutions, and ideals, and in the U.S. Constitution.

149. Comparative Public Administration (3)

Prerequisite: Political Science 140 or equivalent.

Administrative organization and process in selected foreign and American governments. Analysis of the cultural basis of administrative systems.

151. California Law of Municipal Corporations (2) II

California law governing the nature, regulation and control of the counties, charter cities, sixth class cities, school districts and special districts. The creation, alteration, dissolution, legal actions by and against, powers and duties; rights and liabilities of local governments.

152. Administrative Management (3) I, II

Areas and problems of administrative research; methods of analyzing structures and procedures in organizations; planning and administration of programs; design of forms; job classification and salary surveys; preparation of administrative reports.

153. Case Studies in Public Administration (3) I, II
Prerequisite: One course in public administration or consent of instructor.

Analysis, by case studies, of management problems in public agencies and the organization and methods techniques used to solve them. Practical limitations upon the use of these techniques.

157. Public Relations of Public Agencies (3)
Prerequisite: Political Science 140 or equivalent.

Theory and practice of public relations in government. Public opinion and clientele groups in relation to administrative agencies. Problems in public relations of public agencies. Techniques of public relations.

160. Principles of Planning (2 or 3) I, II
An introduction to community planning: regional, county, and city. Consideration of the Master Plan, including its purposes, contents, and method of adoption.

161. Field Studies in Government (3) II, Summer
Prerequisite: Consent of instructor.

Study of organization, policies and functions of selected government agencies. Discussion by responsible officers and inspection of work operations and facilities in management, public safety, public works and utilities, and other major governmental operations.

162. Finance Administration (2 or 3) I
Principles and practices studied from the administrator's viewpoint. Problems of revenue, debt and treasury management, current and capital budget preparation and administration; purchasing and stores supervision; accounting and control and financial reporting.

Honors Course

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

International Relations (Group V)

165. Dynamics of Modern International Crises (3) I
Prerequisite: Consent of instructor.

The determination and analysis of facts surrounding international crises since World War II; the evaluation of these crises and their effects upon external policies of the United States and the operations of the United Nations.

168-S. Institute on World Affairs (3) Summer
Contemporary problems in international relations. May be repeated once for course credit with permission of the instructor.

170A-170B. International Relations (3-3)
A historical and analytical consideration of the basic factors—historic, geographic, economic, ideologic, and strategic—which underlie and condition the modern conflict between the "sovereign state" and the "community of nations." Fall semester: Origins and development through the nineteenth century. Spring semester: Twentieth century experimentation and conflict.

171. The Conduct of American Foreign Relations (3) II
An examination of the legal, administrative, and political organizations by which American foreign policies are formulated and implemented.

172. International Organization (3) I
A critical analysis of the organization by which the international community seeks to provide for the exercise of legislative, administrative and judicial functions on the international level: diplomatic and consular corps; conferences; administration through commissions and unions; amicable procedures for settlement of disputes; the League of Nations-United Nations experiment.

173. Principles of International Law (3) I
The function of law in the international community. The historical development of the ideas and rules of international law and their place in the modern diplomatic and legal structure.

175. International Relations of the Latin American States (3) II
The foreign policies of the Latin American states; the organization of American states; relationships with the United Nations and with the United States.

Comparative Government (Group VI)

180. Government of England (3) I
The structure and functioning of the English parliamentary system with emphasis upon present day political principles and parties.

181. Government of the Soviet Union (3) I
Theory and practice of government in the Soviet Union, with some attention to foreign affairs.

182. Political Systems of South America (3)
Government and politics of selected South American countries. Values, governmental institutions and patterns of political activity which condition domestic and foreign policy.

183. Governments and Politics of South and Southeast Asia (3)
The internal political systems and foreign policies of India, Pakistan, Thailand, and Indochinese area, Indonesia, and the Philippines.

184. The Mexican Political System (3)
Principal factors in Mexican governmental decision-making. Ideology, political groups, tactics of leaders and governmental structure.

185. Governments of Continental Europe (3) I, II
An analysis of the political systems of the countries of western continental Europe.

186. Comparative Communist Governments (3) I, II
A survey of the interrelations between the theory and practice of modern communism as found in representative communist systems.

187. Governments and Politics of the Far East (3)
The internal political structure and foreign policies of China, Japan, and Korea.

188. Governments and Politics of the African States (3)
Political institutions and philosophies of selected African states.

196-S. Institute of Public Affairs (1-3) Summer
Study of selected phases of American or Comparative Government. May be repeated to a maximum of six units of course credit with new content and consent of instructor.

197. Investigation and Report (3) I, II
Analysis of special topics. Admission by permission of instructor.

198. Internship in Public Administration (2-6) I, II
Prerequisite: Consent of instructor.
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

EXTENSION COURSE

X-141. Government Report Writing (2)
Actual writing problems in government, including surveys, recommendations, studies, analysis, progress reports, annual reports, etc., are discussed and their solutions analyzed. Attention to methods of collecting and organizing data, and practice in effective presentation of facts and ideas. Special consideration is given to problems of class members.

GRADUATE COURSES

200. The Scope and Method of Political Science (3)
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.

210. Seminar in Political Theory (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

215. Seminar in American National Government (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

220. Seminar in Politics (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

230. Seminar in Public Law (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

240. Seminar in Public Administration (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

241. Seminar in Public Personnel Administration (3)
Prerequisite: Political Science 144.
Analysis of special problems of public service recruitment; recent developments in government pay administration; planning administration, and evaluation of executive development and other training programs; collective bargaining in government; construction and administration of tests; evaluation of total personnel program.

242. Seminar in Public Administration in Developing Nations (3)
Prerequisite: Political Science 140.
Selected problems in administration of economic and technical assistance programs; problems of administration in developing areas.

249. Seminar in Comparative Administration (3)
Prerequisite: Political Science 140.
Selected problems in administration, organization, and processes of foreign and international governments. May be repeated with new content to a maximum of six units with consent of graduate adviser.

250. Seminar in Local Government (3)
Selected problems of state and local government and inter-governmental relations. May be repeated with new content to a maximum of six units with consent of graduate adviser.

260. Planning and Public Policy (3)
Prerequisites: Appropriate undergraduate courses in planning, political science, or related fields.
Relationship of the planning process to governmental policies and administration. Examination of social, political, and administrative problems involved in planning governmental programs and community facilities.

270. Seminar in International Relations (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

272. Seminar in International Organization (3)
Prerequisite: Political Science 172 of consent of instructor.
Analysis of selected problems of international organization with special reference to those of the United Nations. Oral and written reports.

280. Seminar in Comparative Government (3)
May be repeated with new content to a maximum of six units with consent of graduate adviser.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Problem Analysis (3)
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or thesis.

296. Internship in Public Administration (1-6)
Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

PORTUGUESE

IN THE DIVISION OF THE HUMANITIES

Faculty

Assistant Professor: Freitas

Offered by the Department of Foreign Languages

Courses in Portuguese.

Major or minor work is not offered.

UPPER DIVISION COURSES

131. Portuguese (3) I
Prerequisites: 22 units of college Spanish, including Spanish 101A and 101B, or consent of instructor.

An accelerated course covering various aspects of the language and literature of the Portuguese world.

132. Portuguese (3) II
Prerequisite: Portuguese 131 or equivalent.

Continuation of Portuguese 131.

PSYCHOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professors: Carlson, Kaplan (Chairman), McCollom, Sidowski, Treat, Turner, M. B., Voeks

Associate Professors: Crow, Daniel, Harrison, Hunrichs, Kinnon, Leukel, O'Day, Rumbaugh, Smith, J., Stevens

Assistant Professors: Aiken, Dicken, Dorfman, Eason, Grossberg, Hillix, Kass, Lynn, Penn, Psomas, Segal, Smith, W.

Lecturers: Johnson, L., McDonald, Montague, Sand

Offered by the Department

Master of arts degree with a major in psychology; a master of arts degree for teaching service with a concentration in psychology; and a master of science degree in applied psychology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in psychology with the A.B. degree in liberal arts and sciences. (Described in the section of the College of Arts and Sciences.)

Major in psychology with the A.B. degree in applied arts and sciences for students admitted to teacher education. (Described in the section on the General Programs.)

Minor in psychology. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

1. General (3) I, II

An introduction to some of the facts, principles, and concepts which are basic to understanding human behavior. A required general education course in psychology.

2. Psychology Laboratory (1)

One lecture and three hours of laboratory.

Prerequisite: Psychology 1.

Application of experimental methods to psychological problems. Includes design and execution of experiments.

5. Principles of Psychology: Basic Organization of Behavior (3) I, II

Prerequisites: Psychology 1 and sophomore standing.

The basic sensory, neural and motor mechanisms and their functions in human behavior.

6. Principles of Psychology: Learning and Integrated Behavior (3) I, II

Prerequisites: Psychology 1 and sophomore standing.

Attending, perceiving, and learning, including social learning, personality development, and conditions of efficient work.

11. Applied Psychology (3) I, II

Prerequisite: Psychology 1.

A survey of the application of the basic principles of psychology to business, education, industry, government, law, medicine and related fields.

12. Psychology of Individual Adjustment (3) I, II

Prerequisite: Psychology 1.

An examination and interpretation of the factors which go into the making of the person as he adapts himself to the social world about him. The development of the normal personality.

14. Applied Group Dynamics (3) I, II

Two lectures and four hours of laboratory.

Prerequisite: Psychology 1.

Psychological analysis of group processes and training in the human relations skills necessary for effective participation in groups.

UPPER DIVISION COURSES

104A. Statistical Methods in Psychology (3) I, II

Prequisite: Psychology 1.

An introduction to the use of quantitative methods in psychology, with emphasis upon measures of central tendency and variability, graphic methods and percentiles, linear correlation, and the applications of the normal probability curve. Not open to students with credit for another upper division course in statistical methods.

104B. Advanced Statistics (3) II

Prerequisites: Mathematics 3 and Psychology 104A, or consent of instructor.

A further study of quantitative methods in psychology with particular emphasis on methods of correlation, chi-square, and contingency, and an introduction to the analysis of variance.

105. Psychological Testing (3) I, II
(Same course as Education 150)
Prerequisite: One of the following courses: Psychology 104A, Education 120, 151, and 152, or a semester of statistical methods in any other department.
The basic principles of testing. The selection and critical evaluation of group tests of intelligence, personality, aptitude, interest and achievement.

106. Developmental Psychology (3) I, II
Prerequisite: Psychology 1.
A study of the psychological development of the normal individual from conception through childhood, adolescence, maturity, and old age. Stress is laid upon the interdependence of the various periods of the individual's life.

107. Psychology of Later Maturity (3) II
Prerequisite: Psychology 1.
The psychological, physiological, and sociological factors influencing behavior in the later years of life.

109. Mental Deficiency (3) I, Summer
Prerequisite: One of the following: Psychology 106, Education 110, 112, 113, or equivalents.
The nature and causes of mental retardation, including the psychological effects of brain injury. Characteristics of the mentally defective.

110. Introduction to Experimental Psychology: Learning and Motivation (3) I, II
One lecture and six hours of laboratory.
Prerequisites: Psychology 5, 6, and 104A.
Introduction to experimental method in psychology; application to learning and motivation.

111. Experimental Psychology: Sensation and Perception (3) I
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to sensation and perception.

112. Experimental Psychology: Social (3) II
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to social behavior.

113. Experimental Psychology: Physiological (3) I
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to physiological concomitants of behavior.

114. Experimental Psychology: Comparative (3) II
One lecture and six hours of laboratory.
Prerequisite: Psychology 110.
Experimental methods applied to animal behavior and comparative psychology.

121. Personnel and Industrial Psychology (3) I, II
Prerequisite: Psychology 104A or Sociology 160.
Psychological principles applied to problems of selection and assignment of industrial personnel, employee training, and fatigue.

122. Public Opinion Measurement (3) I
(Same course as Journalism 122)
The history, methods, and problems of public opinion and attitude measurement. Emphasis will be placed upon the polling of consumers and voters. Students will be given field experience.

124. Engineering Psychology (3) I, II

Two lectures and three hours of laboratory.

Prerequisites: Psychology 1 and upper division standing.

Psychological problems of man-machine systems. Visual, auditory, and other sensory factors involved in the inter-relations between man and machines. Motion-study, work arrangement, fatigue, and environmental influences in relation to production.

130. Educational Psychology (2) I, II

(Same course as Education 111)

Prerequisite: Psychology 1.

To develop understanding of the application of psychological research for effective classroom teaching. Observation and field work required. Not open to students with credit in Education 111.

131. Psychology of Personality (3) I, II

Prerequisite: One full year of psychology.

The principles of personality and their application to problems of adaptation and mental hygiene.

133. Principles of Interviewing (3) I, II

Prerequisites: Six units of psychology. Recommended: Psychology 12, 14, or 131.

Psychological factors in interviewing; interviewing techniques. Supervised practice in interviewing for purposes of personnel appraisal and development.

141. Neural Bases of Behavior (3) I

Two lectures and two hours of activity periods.

Prerequisites: Psychology 5 and 6; or nine units in biological sciences.

Elements of neurology, with particular attention to the psycho-physiology of sensory mechanisms and motor systems.

142. Physiological Psychology (3) II

Two lectures and two hours of activity periods.

Prerequisites: Psychology 5 and 6 and three hours of biology; or nine hours of biology.

The neurophysiology of emotion, sleep, bodily needs, instinctive patterns of behavior, and of learning; brain and behavior disorders.

145. Social Psychology (3) I, II

The major problems and findings concerning group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Sociology 140.

150. Abnormal Psychology (3) I, II

Prerequisite: One full year of psychology.

The psychology of behavior disorders, with emphasis on the amentias, neuroses, and psychoses.

151. Introduction to Clinical Appraisal (3) I, II

Prerequisites: Psychology 105 and 150, or Education 170 plus Education 151 or 152 or 120; and one additional course in psychology selected from the following: Psychology 105, 106, 131, 142, or 150.

A study of diagnostic devices in psychology, tests of clinical significance, ratings, and interviewing. Projective and case study, analyses; problems of insight, rapport, empathy, and prediction of individual behavior.

152. Introduction to Methods of Counseling (3) I, II

Two lectures and two hours of activity periods.

Prerequisites: Senior standing in psychology or presocial work, and consent of instructor.

An introduction to problems and methods of counseling and adjustment. The utilization of psychological principles and techniques in dealing with various types of guidance situations. Not open to students with credit in Psychology 233 or Education 233.

153. Advanced Abnormal Psychology (3)

Prerequisite: Psychology 150.

An intensive study and evaluation of research methodology and current literature concerning the neuroses, psychoses, aphasias, ataxia, mental defect, and psychopharmacology.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

175. Theories of Learning (3) II

Prerequisites: Psychology 1, 5, 6, 104A; or consent of instructor.

A critical study of the facts, principles, and major theories of learning.

177. History of Psychology (3) II

Limited to psychology majors with senior standing and to graduate students.

A survey of the historical background of modern psychology.

178. Theories of Personality (3) I, II

Prerequisite: Major in psychology with senior or graduate standing.

Integration of the findings from perception, learning, motivation, and from physiological and social psychology through a systematic treatment of personality theories and of related experimental data.

180-S. Contemporary Problems in Psychology (1) Summer

Lectures open to the public.

Enrollment for credit limited to upper division and graduate majors in psychology; or consent of instructor.

A series of six weekly lectures by visiting psychologists on subjects related to current research problems. Reading and reports required of students enrolled for credit.

199. Special Study (1-6) I, II

Individual study, including library or laboratory research and a written report. Six units maximum credit.

Prerequisites: Senior standing and consent of instructor.

GRADUATE COURSES

201. Seminar (3)

Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department.

A review, integration, and supplementation of the student's knowledge of psychology.

202A-202B. Contemporary Psychology (3-3)

Prerequisite: Bachelor's degree in psychology or permission of the coordinating instructor.

A comprehensive survey of contemporary literature in psychology, dealing with recent developments in the areas of learning and motivation, perception, psychophysiology, personality and psychodynamics, social behavior, and experimental inference.

204. Individual Psychological Testing (3)

One lecture and six hours of laboratory.

Prerequisites: Psychology 104A and 105.

Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler scales, and some similar tests.

205. Advanced Mental Testing (3)

Two hours of lecture and three hours of laboratory.

Prerequisites: Psychology 104A, 105, 151, and 204.

The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler scales and the Stanford-Binet are stressed.

211. Advanced Clinical Psychology (3)

Two hours of lecture and three hours of laboratory.

Prerequisites: Psychology 151, 152, and 204.

Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases.

220. Seminar in Human Relations in Industry (3)

Prerequisite: Psychology 121 or Business Administration 145.

Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership.

221. Seminar in Problems in Social Psychology (3)

Prerequisites: Psychology 104A, 145, 110 or 111, and 175; or consent of instructor.

Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal conflict.

222. Seminar in Theoretical Psychology (3)

Prerequisites: Psychology 175 and 178.

Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination.

223. Experimental Design (3)

Prerequisites: Psychology 104B and 110.

Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination.

224. Advanced Experimental (3)

One lecture and six hours of laboratory.

Prerequisite: Psychology 223.

Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.

225. Principles of Test Construction (3)

Prerequisites: Psychology 104B and 105.

Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.

231. Seminar in Ethology and Comparative Psychology (2)

(Same course as Biology 231)

Prerequisite: Psychology 114 or Biology 110, or consent of instructor.

A seminar in the types of species, specific behavior patterns and their function in the living system of animals. May be repeated with new content to a total of four units.

233. Guidance Counseling Techniques (3)

(Same course as Education 233)

Prerequisite: Education 115 or 230, or Psychology 151.

Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing.

234. Projective Psychology (3)
Prerequisites: Psychology 104A, 105, 151, 178, and 204.
Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices.

235. The Rorschach Method (3)
Prerequisites: Psychology 104A, 105, 151, 178, 204, and 234.
A seminar and practicum in basic administration and scoring of the Rorschach Test, with critical appraisal of the problems involved in estimations of reliability and validity of this technique.

236. Interpretation of Projective Materials (3)
Prerequisite: Psychology 235.
A seminar in the clinical interpretation of the Rorschach Test, the Thematic Apperception Test, and other projective devices, with critical emphasis on methods of research and validation. Not acceptable for credit toward the M.S. degree in psychology.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

296. Directed Field Experience (1-6)
Limited to graduate students in psychology, with appropriate qualifications in a field of professional skill.
The student must arrange his practicum setting in cooperation with the chairman of the Psychology Department Practicum Committee and with the express approval of that committee during the semester prior to enrolling for credit in this course.

298. Special Study (1-6)
Prerequisite: Consent of instructor.
Individual projects involving library research or laboratory research in physiological, industrial, learning, clinical, and other areas of experimental psychology. Maximum credit six units.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree. Credit is contingent upon acceptance of the completed thesis by the Department of Psychology.

RECREATION

IN THE DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Faculty

Professor: Terry (Acting Chairman)

Assistant Professor: Hanson

Offered by the Department

Major in recreation with the A.B. degree in applied arts and sciences. (Described in the section of this catalog on the General Programs.)

Minor in recreation. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

63. Professional Activities: Dance (2) II
(Same course as Physical Education 63)
Practice in the skills and techniques of the dance, and experience in the organization and presentation of dance materials.

74. Elementary School Physical Education Activities (2) I, II
(Same course as Physical Education 74)
Physical education activities designed for the elementary school child; emphasis on the organization, supervision, and evaluation of the physical education program in the elementary school.

80. Camp Leadership (2) II
Consideration of camp administration and principles of good camp leadership. Lectures and practical sessions aimed at general training in all phases of outdoor education and camp leadership, including skills in axemanship, outdoor cooking, nature projects, camp crafts, campfire and special camp programs.

UPPER DIVISION COURSES

165. Administration of Community Recreation (3) II
The principles of organization and promotion of leisure time and recreation activities. Course content covers growth of the recreation movement, administration of areas and facilities, program of activities, features, services, organization and administration problems. A required course for recreation minors.

166. Honors Course I, II (Credit to be arranged)
Refer to the Honors Program.

170A-170B. Recreation Leadership (3-3)
(Same course as Physical Education 170A-170B)
Principles and practices in recreation leadership. Course content of 170A includes organization of competition, intramurals, playground practices; content of 170B includes recreational arts and crafts, dramatics, social recreation, and music. Neither course is a prerequisite for the other.

184A-184B. Field Work in Recreation (3-3)
For recreation majors and minors. Others only with consent of instructor.
Observation and participation in supervised group activities in the field. Practical experience in the various public and semipublic community recreaton agencies.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of special study adviser.

GRADUATE COURSES

204. Problems in Recreation (3) (Alternate years)
(Same course as Physical Education 204)
A survey of current problems facing the recreation profession, a review of literature, discussion of trends and observation of school situations together with the analysis and evaluation of actual problems. Written reports are required.

RUSSIAN

IN THE DIVISION OF THE HUMANITIES

Faculty

Assistant Professor: Dukas

Offered by the Department of Foreign Languages

Minor in Russian. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

HIGH SCHOOL EQUIVALENTS

Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, reading in Russian literature, minimum essentials of grammar.

2. Elementary (4) II

Four lectures and one hour of laboratory.
Prerequisite: Russian 1.
Continuation of Russian 1.

3. Intermediate (4) I

Prerequisite: Russian 2 or three years of high school Russian.

A practical application of the fundamental principles of grammar. Reading in Russian of cultural material, short stories, novels or plays; oral practice, outside reading with oral and written reports.

4. Intermediate (4) II

Prerequisite: Russian 3.
Continuation of Russian 3.

10. Conversation (2) I

Prerequisite: Russian 2 or three years of high school Russian.

Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II

Prerequisite: Russian 10 or Russian 3, or four years of high school Russian.
Continuation of Russian 10.

UPPER DIVISION COURSES

101A-101B. Conversation and Composition (3-3)

Prerequisite: Russian 4 with grade of C or better, or consent of instructor.

Translation into Russian from moderately difficult English prose, with written reports in Russian. Readings and oral discussions of Russian plays and short stories.

102A-102B. Survey of Russian Literature (3-3)

Prerequisite: Russian 4 with a grade of C or better.

A study of Russian literature from its beginnings, with emphasis on the nineteenth and twentieth centuries.

122. The Foreign Language Laboratory (2) I

Conducted in English.
Prerequisite: Admission to teacher education.

Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, or Spanish 122.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

199. Special Study (1-6) I, II

Individual study. Maximum credit six units.
Prerequisite: Consent of instructor.

SOCIAL WELFARE

(PRESOCIAL WORK)

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Associate Professor: Tebor

Assistant Professors: Murphy, M. L., Rana

Offered by the Department of Sociology-Anthropology

Major in social welfare with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

UPPER DIVISION COURSES

100. History and Philosophy of Social Welfare (3) I

Prerequisite: Sociology 1 or 10.

Growth and differentiation of social welfare programs in response to changing historical conditions. Developments from the time of the English Poor Laws to the current social security and voluntary programs.

166. Honors Course (Credit to be arranged) I, II

Refer to the Honors Program.

180. Social Welfare Organization (3) II

Prerequisites: Social Welfare 100 and Sociology 1 or 10.

A survey of the nature of social work and the various settings in which social work is practiced in American society. The student is familiarized with the various social agencies and their operations by use of readings, lectures and speakers from various social agencies.

182. Methods of Social Work (3) II

Prerequisite: Social Welfare 180.

Introduction to the basic concepts and methods used in casework, group work, and community organization agencies, with emphasis on discussion of case materials.

183. Social Group Work (3) I

Prerequisite: Social Welfare 180.

The role of the social worker with the group and its individuals; understanding group processes; use of program media for the development of interpersonal relations and group structure. Discussion includes process recording.

184. Community Welfare Organization (3) II

Prerequisite: Social Welfare 180.

The social structure of communities and processes of change as related to the community welfare programs; strategy of change; the role of the professional worker; public-private relationships.

185. Public Welfare (3) II

Prerequisite: Social Welfare 180.

A historical and current perspective of public welfare. Analysis of current programs of social insurance, public assistance, general relief, and other public welfare policies and programs.

186. Social Work and the Law (3) I

Prerequisite: Social Welfare 180.

Trends and current developments in social legislation; laws regarding poor relief, child labor, and the family, including marriage and divorce laws, illegitimacy, adoption, guardianship.

187. Child Welfare (3) I

Prerequisite: Social Welfare 180.

Analysis of the development and current programs of child welfare on the local, state, national, and international levels; the relationship between private and public agencies in promoting the welfare of children.

189. Field Assignment in Social Work (3) II
Prerequisite: Credit or concurrent registration in Social Welfare 182.

Approximately 10 hours weekly spent in an approved local social agency in the field of social casework, group work, or community organization, under the supervision of an experienced agency worker and including periodic consultations with the faculty adviser.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

SOCIOLOGY

IN THE DIVISION OF THE SOCIAL SCIENCES

Faculty

Professors: Barnhart, Klapp, Milne, Wendling (Chairman, Sociology-Anthropology)

Associate Professors: Daniels, M., Kirby

Assistant Professors: Bates, De Lora, Elliott, Feldman, Gillette, Jackson, M., McJunkins, Mouratides, Voss

Lecturer: Booth

Offered by the Department of Sociology-Anthropology

Master of arts degree with a major in sociology; and a master of arts degree for teaching service in social science (sociology). (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in sociology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in sociology. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

1. Introductory Sociology (3) I, II
This course, or Sociology 102, is prerequisite to all upper division courses in sociology.

Development and use of the concepts applied to sociological analysis; the effects of isolation and social contacts, interaction, processes, forces, controls, collective behavior, and social progress. Not open to students with credit in Sociology 102.

10. Contemporary Social Problems (3) I, II
Survey of modern social problems recognizing the sociological factors involved. Emphasis on the scientific method of approach. An evaluation of various causes and solutions of problems. Not open to students with credit in Sociology 110.

35. Marriage and the Family (3) I, II
Analysis of dating, engagement, marriage and family relationships, The married couple as a small group viewed through contemporary sociological and social psychological principles and research findings. Factors predictive of marital behavior. Not open to students with credit in Home Economics 35 or other course in marriage and the family. (Sociology 35 was formerly entitled: Courtship and Marriage.)

60. Elementary Social Statistics (3) I, II
Prerequisites: Sociology 1 and Mathematics 18 or a higher numbered course.

Analysis and presentation of elementary materials in the fields of sociology and social work. Tabular and graphic presentation, analysis of frequency distribution, trends, simple correlation, sampling and reliability techniques. Not open to students with credit for another course in statistics.

UPPER DIVISION COURSES

100. History of Social Thought (3) I, II
Prerequisite: Sociology 1 or 102.
The origin and development of social theory in Europe and America; consideration of the fields and specialization and research in contemporary American sociology.

101. Modern Social Theory (3) I, II
Prerequisites: Sociology 1 or 102 and 100, or consent of instructor.
A study of theories basic to modern sociological research, including the viewpoints of European and American thinkers.

102. Principles of Sociology (3) I, II
Development and use of the concepts that are applied to sociological analysis. A more intensive introduction to sociology than given in Sociology 1. Not open to students with credit in Sociology 1. Sociology 102 may not be used to fulfill the minimal upper division requirements in the sociology major or minor, social science major or minor, or the general major.

110. Social Disorganization (3) I, II
Prerequisite: Sociology 1 or 102.
Survey of many alleged abnormal phenomena in society as seen in society today in various forms of individual, family, community and world disorganization, such as crime, prostitution, extreme alcoholism, migratory workers, divorce, revolution, war, etc. Not open to students with credit in Sociology 10.

113. Criminology and Penology (3) I, II
Prerequisite: Sociology 1 or 102 or consent of instructor.
The extent and characteristics of crime; consideration of physical, mental, economic, and sociological causes of crime; study of methods of penal discipline, prison labor, parole, and probation; programs of prevention.

114. Juvenile Delinquency (3) I, II
Prerequisite: Sociology 1 or 102 or consent of instructor.
The nature and extent of delinquency; the causative factors involved; methods of control and prevention, with special attention to the protective and remedial measures offered by the school, home, juvenile court, correctional institutions and camps, probation and parole, and recreational agenices.

116. Contemporary Correctional Administration (3) II
Prerequisite: Sociology 113 or 114, or consent of instructor.
A study of the problems encountered in administering modern correctional institutions, forestry and road camps, detention homes, and jails.

120. Industrial Sociology (3) II
Prerequisite: Sociology 1 or 102.
Analysis of group relationships within economic organizations. Problems of leadership, morale and conflict. Some attention to the sociology of occupations and professions.

121. Medical Sociology (3) I
Prerequisite: Sociology 1 or 102.
A sociological analysis of health and medical institutions. Cultural factors in conceptions of disease, health, and healing. Social structure of medical facilities and the role of personnel in such institutions. Relation of illness to income, housing, and other socio-economic factors. Not open to students with credit in Health Education 181.

122. Social Organization (3) I, II
Prerequisite: Sociology 1 or 102.
Major forms of social organization such as institutions, associations, bureaucracy, primary groups, and stratification. Study of underlying processes of development, social control and organizational change.

123. The Sociology of Mental Illness (3) II
Prerequisite: Sociology 1 or 102.
The social definition, ecology, and control of mental illness across various societies. The implications of social differentiation, stratification, and urbanization upon the incidence, prevalence, and control of mental illness and the use of these empirical problems for sociological research.

124. Social Stratification (3) I, II
Prerequisite: Sociology 1 or 102.
Theories of stratification in society; studies in the American stratification system and its implications in the other areas of life. Introduction to the study of mobility. Comparison with other selected societies.

125. Minority Group Relations (3) I, II
Prerequisite: Sociology 1 or 102.
Theories of ethnic prejudice. Analysis of racial and ethnic discrimination. Analytical inquiry into sources of friction and causes of conflict between majority and minority groups. (Formerly entitled: Race Relations.)

135. Dynamics of Family Development (3) II
Prerequisite: Sociology 1 or 102.
Analysis of the history of families; how they form, function, and grow to maturity. Focus on the development and interaction of family members throughout all stages of family life cycle from marriage to dissolution. (Not open to students with credit in another upper division course in marriage and the family.)

136. Sociology of the Family (3) II
Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.
A comparative study of family systems in different societies. Changing role-structure and functions of the modern family; rural-urban, social class, racial and ethnic differences in family organization; marriage and family as a developing system of interpersonal relationships.

138. Sociology of Religion (3) II
Prerequisite: Sociology 1 or 102. Recommended: Sociology 101 and 146.
The role of religion in society as cult and institution, including primitive religion, modern sects and churches, ritual, secularization, and religious movements.

140. Social-Psychological Foundations of Society (3) I, II
Prerequisites: Sociology 1 or 102 and Psychology 1.
The major problems and findings of social-psychological studies with reference to group behavior and group membership, the socialization of the individual, and processes of social interaction. Not open to students with credit in Psychology 145.

146. Collective Behavior (3) I, II
Prerequisites: Sociology 1 or 102, and 140; or consent of instructor.
The basic processes of social behavior in masses and groups, including crowd behavior, fads, fashions, crazes, panics, rumors; sects and cults; heroes and scapegoats; social movements; effects of mass communication.

148. Small Groups (3) I
Prerequisites: Sociology 1 or 102, and 140; or consent of instructor.
Processes, morale and organization of small groups; their role in society and institutions such as industry, military, recreation and education; recent studies and methods of research.

150. Population Problems (3) I
Prerequisite: Sociology 1 or 102 or consent of instructor.
Problems of population relative to age, sex, and racial distribution. Population practices and theories. Biological and geographical aspects of population problems. International population movements.

151. Research Methods in Demography (3) II
Prerequisites: Sociology 60 or Economics 2, and Sociology 150.
Standard procedures in the measurement of fertility, mortality, natural increase, migration, population growth and manpower, and working activities. Appraisal of source materials. Students to complete one project during term.

157. Urban Sociology (3) II
Prerequisite: Sociology 1 or 102 or consent of instructor.
A study of the structure and function of the modern city; types of neighborhoods; forms of recreation; social forces in a metropolitan area; types of urban personalities and groups; rural-urban conflicts of culture. Practical field studies required.

160. Quantitative Methods in Social Research (3) I
Prerequisites: Sociology 60 or consent of instructor.
The use of parametric and non-parametric techniques in the analysis of social research data; including analysis of variance; covariance; multiple and partial correlational techniques.

164. Methods of Social Research (3) I, II
Prerequisites: Sociology 1 or 102, and 60, or consent of instructor.
Research methods and interpretation used in the study of communities, institutions, and social conditions.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

197. Investigation and Report (3) I, II
Prerequisite: Consent of instructor.
Analysis of special topics in sociology.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisite: Consent of instructor.

GRADUATE COURSES

200. Seminar in Social Theory (3)
Prerequisites: Sociology 101 and 164, or consent of instructor.
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report of findings.

210. Seminar in Social Disorganization (3)
Prerequisites: Sociology 110 and 164, or consent of instructor.
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urbanization, secularization and social change, to these processes, with emphasis on contemporary theory and research.

220. Seminar in Social Organization (3)
Prerequisite: Sociology 164 or consent of instructor.
Analysis of the principal organizational forms of society and groups, in terms of their basic patterns, interrelations, organizational change, and the relation of the individual to social structure. Study of bureaucracy, consensus, formal and informal structure and function.

230. Seminar in Social Institutions (3)
Prerequisite: Sociology 164 or consent of instructor.
Advanced study of institutional forms and processes, including the institutional bases of social mores. The effect of sociological factors, including cultural lag, on contemporary social institutions.

240. Seminar in Social Interaction (3)
Prerequisites: Sociology 140 and 164, or consent of instructor.
Advanced study of social-pyschological interaction, including sociological factors in personality development and analysis of morale, motivation, leadership and other elements of group behavior.

250. Seminar in Human Ecology and Demography (3)
Prerequisites: Sociology 150 and 164, or consent of instructor.

Analysis of the sociological variables which influence distribution and composition of populations and social institutions, with special emphasis on urban social organization.

260. Seminar in Research Methods (3)
Prerequisites: Sociology 101 and 164, or consent of instructor.

Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types of projects. Evaluation of research in progress by members of the seminar.

290. Bibliography (1)
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

SPANISH

IN THE DIVISION OF THE HUMANITIES

Faculty

Emeritus Faculty: Brown, L. P., Phillips

Associate Professor: Baker, C. (Chairman, Department of Foreign Languages)

Assistant Professors: Case, Freitas, Lemus, Walsh, Williams F.

Offered by the Department of Foreign Languages

Master of arts degree with a major in Spanish; and a master of arts degree for teaching service with a concentration in Spanish. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in Spanish with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Minor in Spanish. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

HIGH SCHOOL EQUIVALENTS

High School Equivalents. Two years of one foreign language in high school may be counted, for purposes of placement only, as the equivalent of four units in the same language in college. Three years in high school may be counted as the equivalent of eight units in college; and four years in high school the equivalent of 12 units in college. The last year-course taken by a student in a high school foreign language sequence may be repeated in college for graduation credit, not to exceed four units of repeated foreign language work.

LOWER DIVISION COURSES

1. Elementary (4) I

Four lectures and one hour of laboratory.

Pronunciation, oral practice, readings on Spanish culture and civilization, minimum essentials of grammar.

2. Elementary (4) II
Four lectures and one hour of laboratory.
Prerequisite: Spanish 1 or two years of high school Spanish.
Continuation of Spanish 1.

3. Intermediate (4) I
Prerequisite: Spanish 2 or three years of high school Spanish.
A practical application of the fundamental principles of grammar. Reading in Spanish of cultural material, short stories, novels or plays; oral practice; outside reading with oral and written reports.

4. Intermediate (4) II
Prerequisite: Spanish 3 or four years of high school Spanish.
Continuation of Spanish 3.

10. Conversation (2) I
Prerequisite: Spanish 2 or three years of high school Spanish.
Practice in the spoken language; practical vocabulary; conversation on assigned topics; simple dialogues and plays.

11. Conversation (2) II
Prerequisite: Spanish 10 or Spanish 3, or four years of high school Spanish.
Continuation of Spanish 10.

40. Spanish Civilization (2) I
(Same course as Humanities 46)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish culture, as expressed through the centuries in literature, art, and philosophy.

41. Spanish-American Civilization (2) II
(Same course as Humanities 47)
Conducted in English. No prerequisite.
The major currents and characteristics of Spanish-American culture, as expressed through the centuries in literature, art, and philosophy.

UPPER DIVISION COURSES

101A-101B. Advanced Oral and Written Composition (3-3)
Prerequisites: Spanish 4 and 11, with a grade of C or better.
Translation into Spanish of moderately difficult English prose passages. Free composition in Spanish. Outside reading of modern Spanish plays, with written reports in Spanish. Oral practice on colloquial Spanish with extensive use of phonograph recordings.

102A-102B. Survey Course in Spanish Literature (3-3)
Prerequisite: Spanish 4 with a grade of C or better.
A study of important movements, authors, and works in Spanish literature from the Middle Ages to the present.

103A-103B. The Literature of the Spanish Golden Age (3-3)
(Offered in 1964-65)
Prerequisites: Spanish 4 and 11, with a grade of C or better.
Readings from the major writers (all genres) of the Siglo de Oro, class discussion and written reports.

104A-104B. Spanish-American Literature (3-3)
(Same course as Comparative Literature 104A-104B)
Prerequisites: Spanish 4 and 11 with grade of C or better.
Reading from representative Spanish-American authors during the colonial, revolutionary and modern periods. Lectures, class reading, collateral reading and reports. May be taken as Comparative Literature 104A-104B when work is done in English translation.

105A-105B. Modern Spanish Drama (3-3)
(Offered in 1965-66)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the drama of Spain from the beginning of the nineteenth century to the present time.

110A-110B. Novel and Short Story in Spain (3-3)
Prerequisites: Spanish 4 and 11 with grade of C or better.
The development of the novel and short story in Spain from 1830 to the present time.

122. The Foreign Language Laboratory (2) I
Conducted in English.
Prerequisite: Admission to teacher education.
Utilization of the language laboratory, applied to the teaching of foreign languages, including operation of equipment and preparation of material. Discussion and demonstration of related techniques. Not open to students with credit in French, German, or Russian 122.

140. Spanish Civilization (2) I
(Same course as Humanities 146)
Conducted in English. No prerequisite.
An advanced course in Spanish culture of the past and present, with emphasis on the arts, philosophy, and literature. Lectures, class discussions, outside readings, written reports on individual topics.

141. Spanish-American Civilization (2) II
(Same course as Humanities 147)
Conducted in English. No prerequisite.
An advanced course in Spanish-American culture. From the period of the Spanish Conquest to the present, with emphasis on the arts, literature, and philosophy. Lectures, class discussions, outside readings, written reports on individual topics.

166. Honors Course (Credit to be arranged) I, II
Refer to Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit. This course is intended only for students who are currently enrolled in or who already have credit for all upper division courses in Spanish available in any given semester.
Prerequisite: Consent of staff.

GRADUATE COURSES

201. Old Spanish (3)
Prerequisite: 18 units of upper division Spanish.
A study of the language and literature of Spain from the 12th to the 15th centuries.

202. Cervantes (3)
Prerequisite: 18 units of upper division Spanish.
A study of the principal prose works of Cervantes: The Novelas ejemplares and Don Quixote.

204. The Spanish-American Novel (3)
Prerequisite: 18 units of upper division Spanish.
A study of some aspect of the Spanish-American novel.

205. Spanish-American Poetry (3)
(Offered in spring 1963)
Prerequisite: 18 units of upper division Spanish.
An intensive study of Modernism or of the Gaucho Epic.

290. Research and Bibliography (2)
Prerequisite: 18 units of upper division Spanish.

Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)
Prerequisites: 18 units of upper division Spanish and consent of graduate adviser and department chairman. Required of all candidates for the M.A. degree with the general secondary or junior college credential.

A study of important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the M.A. degree.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisites: 18 units of upper division Spanish and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to Candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

Master's degree candidates in general secondary or junior college credential programs are expected to substitute Spanish 294 and a comprehensive examination for the thesis.

SPEECH ARTS

IN THE DIVISION OF THE FINE ARTS

Faculty

Professors: Ackley, Benjamin, Earnest, S., Jones, K., Pfaff, Povenmire, Sellman

Associate Professors: Adams, W., Lee, R., Mills, Norwood, Powell (Chairman), Witherspoon

Assistant Professors: Amble, Day, Harris, R., Ouellette, Riedman, Rogers, P., Skinner

Lecturers: Olson, F., Reed

Offered by the Department

Master of arts degree with a major in speech arts; and a master of arts degree for teaching service with a concentration in speech arts. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in speech arts with the A.B. degree in applied arts and sciences. (Described in the section on the General Programs.)

Major in radio and television broadcasting with the B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in speech arts and minor in radio and television broadcasting. (Described in the section on the General Programs.)

Teaching majors and minors are described in the section on Professional Curricula in Education.

LOWER DIVISION COURSES

1. Voice and Diction (3) I, II
Exercises and drills to improve the quality, flexibility and effectiveness of the speaking voice leading to good usage in standard American speech. Preparatory to further courses in public speaking and dramatic art.

Speech Arts

1-X. Speech for International Students (3)
Training in production of American speech sounds, blending and assimilation, American prose rhythm and oral communications. Emphasis on clarity and intelligibility. Practical work in aural comprehension. Prerequisite: Designation by speech testing committee. As a substitute for Speech Arts 3 or 4, this course will meet the general education requirement in oral communication.

2. Oral Communication Laboratory (1) I, II
Two hours of laboratory.

Those who fail the speech test should take this course concurrently with Speech Arts 3. This course provides training in articulation, voice control, vocabulary. Individual laboratory assistance on specific speech problems.

3. Oral Communication (2) I, II
Training in fundamental processes of oral expression; method of obtaining and organizing material; outlining; principles of attention and delivery; practice in construction and delivery of various forms of speeches. Speech Arts 3 (or 4) required in general education.

4. Intermediate Public Speaking (3) I, II
Practice in extemporaneous speaking on subjects of current interest, both national and local, with stress on organization and delivery. Speech Arts 4 (or 3) required in general education.

5. Introduction to the Theater (3) I
A survey of theory and practice in the contemporary theater, including its literary, critical, and technical aspects viewed against historical backgrounds. Attendance at selected rehearsals and performances required.

8. Elementary Stage Costume and Makeup (3) I
Two hours lecture-demonstration and three hours activity.

Principles and application of makeup for stage and television. Pattern drafting, draping, color harmony and use of fabrics for stage costuming. Practical training in the construction of stage costumes and application of makeup for departmental productions.

11A. Fundamentals of Interpretation (3) I
Application of the principles involved in "making words come alive": response to thought and mood, sensory association, emphasis, climax. Practice selections in poetry and prose. Offered as demand requires.

11B. Intermediate Interpretation (3)
Prerequisite: Speech Arts 11A or 55A.

Oral reading of various types of material suitable for popular audiences: stories, humorous sketches, light and sentimental verse.

55A. Elementary Acting (3) I, II
Three lectures per week and an additional 32 hours of laboratory per semester.

Development of the individual's ability to express thought and emotion through the effective use of the voice and body. These fundamental skills may be applied to stage, radio, and television acting.

55B. Intermediate Acting (3) I, II
Three lecture-demonstrations per week and an additional 32 hours of laboratory per semester.

Prerequisite: Speech Arts 55A or consent of instructor.

Continuation of 55A, emphasizing the application of fundamental skills to the problems of emotion, timing, characterization, and ensemble acting.

56. Dramatic Production (3) II
Two lectures and three hours of laboratory.

Technical practices and organization of production for theater and television. Practice in drafting and construction of stage scenery for the college dramatic productions.

60A-60B. Argumentation and Debate (3-3)
Obtaining and organizing of evidence and the construction and use of the brief; study and discussion of current issues; the presentation of formal and informal debates. Participation in intercollegiate debate optional.

61. Intercollegiate Debate (1) I, II
Two hours of activity. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

63. Verse Choir (2) I, II
Three hours.
Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and readings on the nature, artistic function and history of the Verse Choir. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

64. Principles of Parliamentary Procedure (1) I
A study of the rules which govern discussion and procedures in organized assemblies. The class will be arranged as a parliamentary body to afford practice in the application of the rules.

65. Business and Professional Speaking (1) I, II
Basic principles of oral communication with application to the study, preparation, and presentation of business speeches. Special attention to conference, interview, presentation of graphic materials. To be taken in conjunction with selected sections of Oral Communication.

70. Survey of Speech and Hearing Disorders (3) I
Introduction to concepts and principles basic to the fields of speech and hearing disorders. Twenty-five hours of observation or project required.

80. Backgrounds in Broadcasting (3) I
Two lectures and three hours of scheduled activity.
Theory and operation of the radio-television broadcasting industry to include the history of broadcasting. The administration and organization of radio-television stations, emphasizing the inter-relationship of the four major phases of station operation: administration, programming, engineering, and sales.

81. Technical Operations for Radio and Television (3) I, II
Two lectures and three hours of scheduled activity.
Radio-television control room and studio techniques necessary to maintain a broadcast operation. Includes the operation of audiovideo equipment in radio-television production, such as microphone techniques, video control, camera operation, recording, kinescope and microwave operations.

82. Radio Programing and Production (3) I, II
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Theory and practice in the skills and knowledge of radio programing. Includes development of basic radio program types and experience in announcing, writing, directing and production for radio.

83. Television Programing and Production (3) I, II
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Theory and practice in the skills and knowledge of television programing. Includes development of basic television program types and experience in television production, such as directing, writing, graphics.

84. Motion Picture Techniques for Television (3) II
Two lectures and three hours of scheduled activity.
Prerequisite: Speech Arts 81.
Film techniques as they apply to television. Principles of cinematography, film editing, and use of motion picture equipment. Preparation of filmed television programs and program materials.

85. Programing and Production for Educational Broadcasting (3) II

Two lectures and three hours of scheduled activity.

The planning and production of educational radio and television broadcasts. Designed for students interested in handling broadcast activities in speech and drama classes and workshops for high schools and junior colleges. Not open to students with credit for Speech Arts 80. Students in the occupational program should not enroll in this course.

UPPER DIVISION COURSES

100. Phonetics (3) I, II

Auditory and kinesthetic analysis of the sounds of the English language. Valuable as a corrective course in pronounciation and articulation. Required of speech majors and those seeking to teach exceptional children in the area of speech correction and lip reading.

101. Management of Speech Arts Activities (1) I, II

Planning, preparation, management and supervision of speech and drama tournaments, festivals and other interscholastic and intrascholastic activities under the supervision of the speech arts staff. May be repeated for a maximum of two units.

108. Advanced Interpretation (3) I, II

Prerequisite: Speech Arts 11A or 11B, or consent of instructor.

Analysis of techniques of literary composition as guides to oral interpretation. Achievements of the creative artist as they affect the interpretative artist.

109. Workshop in Speech (1 to 3)

Study of some problem in theater, public address, radio and television, or speech and hearing pathology. Maximum credit six units.

110. Creative Dramatics (2) II

Practical training in the principles and techniques of creative dramatization for work with children in the classroom and recreation. Emphasis on the development of the child emotionally and socially through dramatic improvisation.

118A. Play Analysis (3) I

The structure and style of drama. Several short plays and one full-length play are read, discussed and analyzed.

118B. Playwriting (3) II

Lectures, discussion and reading of one-act plays written by the students.

130. Semantics (3) II

Recognition of various types of linguistic meaning; logical distinctions in discourse; distinction between real and verbal disagreement; recognition and correction of semantic fallacies.

140A-140B. Scene Design for Stage and Television (3-3) I, II

Prerequisite: Speech Arts 56 or consent of instructor.

The application of the principles of design, color and perspective to the designing of various types of dramatic productions; the history of stage design. Students will learn to make sketches and models and paint scenery for departmental stage and television productions.

142. Theater Workshop (2) I, II, Summer (3 or 6)

Two hours of activity per unit.

A laboratory to give the student a variety of experience in the theater including acting, lighting, scenery, costumes and stage management. May be repeated for a maximum of six units.

143-S. Workshop in Educational Television (6) Summer

(Same course as Education 143-S)

Open to teachers and students interested in instruction by television.

The procedures and theories of television production as it pertains to closed-circuit and instructional use of television. The selection and utilization of program content and the method of presenting material through the television medium will be discussed and demonstrated.

144-S. Workshop in Educational Radio Broadcasting (6) Summer (9 weeks)
Practice and theory in educational radio broadcasting operation to include program planning, staff administration, and announcing. Students in this workshop will function in staff duties for KEBS(FM).

145. Stage and Television Lighting (3) II
Principles and practice of light, color, lighting instruments, and control equipment, including the design and planning of lighting for plays and television. Students will serve as light crews for departmental productions.

152. History and Design of Costume (Stage) (3) II
Two hours lecture-demonstration and three hours of laboratory.
A study of costume from Egyptian period to the present. Emphasis on the use of historical costumes on the stage. Costume designs for one stage production. Drawing and painting experience desirable but not necessary.

154A-154B. History of the Theater (3-3)
A study of the theater from primitive times to the present. Special attention will be given to the theater as a mirror of the social and cultural background of the various countries and periods in which it is studied. (Speech Arts 154B may be taken without 154A.)

155. Advanced Acting (3) II
Prerequisites: Speech Arts 55A and 55B.
Problems in characterization: acting styles of the Elizabethan and Eighteenth Century period.

156. Advanced Dramatic Production (3) I
Two lectures and three hours of laboratory.
Prerequisite: Speech Arts 56 or consent of instructor.
Further study of scenery drafting and construction, with attention to the multiple-set play. Planning of scenery construction and rigging for stage and television productions.

159. Stage Direction (3) I, II
Planned for prospective directors of plays in schools, colleges and community theaters. Through lectures, discussions, and exercise projects the student will become acquainted with the principles, procedures and methods of stage direction.

160. Stage Direction Laboratory (1) I, II
Prerequisite: Speech Arts 159 or concurrent registration.
This will consist of experience in directing a one-act play before a departmental or public audience. It may be taken with or it may be preceded by Speech Arts 159. May be repeated for a total of two units.

161. Advanced Intercollegiate Debate (1) I, II
Two hours of activity. Credit for participation in intercollegiate program. May be repeated to a total of four units, including lower division and upper division courses, 61 and 161.

162. Advanced Argumentation (3) I
Prerequisite: Consent of instructor.
Detailed study of analysis, preparation of briefs, types of reasoning and use of evidence, fallacies and techniques of refutation. Participation in intercollegiate debate optional.

163. Advanced Verse Choir (2) I, II
Three hours.
Participation in verse speaking chorus to develop quality, range of tone, and ability in dramatic visualization of poetry. Lectures and reading on the nature, artistic function and history of the Verse Choir, with a written report or project. May be repeated to a total of four units, including lower division and upper division courses, 63 and 163.

164. Verse Choir Directing (2 or 3)
Organizing a given group as a Verse Choir, considering age, voice quality, background, selection and arrangement of material, and techniques of directing. Demonstration and practice of techniques to improve speech through the Verse Choir.

166. Honors Course (Credit to be arranged) I, II
Refer to the Honors Program.

170. Speech Development (3) I
Development of normal speech in children; typical and common speech defects in preschool and school children; basic techniques for their prevention and correction. Twenty-five hours of observation or project required.

171. Audiometry (3) I
(Same course as Education 177)
Prerequisite: Consent of instructor.
Anatomy, physiology, and psycho-physics of the human ear, theories of hearing, medical aspects, pathology, audiometric techniques, including tuning fork assessment, pure tone screening techniques with practice, discrete frequency, pure tone threshold testing, play audiometry, and speech audiometric procedures. Meets audiometric certification requirement.

172. Mechanics of Speech Production (3)
Prerequisite: Psychology 5.
Lectures, readings, discussions and demonstrations presenting the structure and function of the neuro-muscular system involved in respiration, phonation, resonance and articulation, physiology of the speech mechanism and the physics of sound transmission. Recommended for speech majors.

173. Functional Problems of Speech and Hearing (3)
Prerequisite: Speech Arts 170 or consent of instructor.
Phenomena of human communication; relation between disorders of personality and difficulties in communication.

174. Principles and Methods of Speech Correction (3) I
(Same course as Education 174)
Prerequisites: Speech Arts 100 and 170, or consent of instructor.
Etiology and treatment of the more common speech disorders, including physiology of speech, voice disorders, cleft palate, foreign dialect.

176. Stuttering and Neurological Disorders (3) II
(Same course as Education 176)
Prerequisites: Speech Arts 100 and 170, or consent of instructor.
Clinical survey of newest methods of speech correction. Special emphasis given to causes and treatment of stuttering, cerebral palsy speech problems and aphasia in adults and children.

177. Audiology (3) II
Prerequisite: Speech Arts 171.
Diagnostic and predictive tests of auditory functioning; types and characteristics of hearing aids; clinical practice.

178. The Teaching of Lipreading (3) II
(Same course as Education 178)
Prerequisite: Speech Arts 171 or Education 177; or consent of instructor.
History, theory, and methods of lipreading and language development for the deaf, including hearing conservation and education. Aids for the classroom teacher; program and materials of instruction for the specialized teacher.

179. Clinical Methods in Speech Correction (2) I, II
Prerequisite: Speech Arts 100, 170, 174, and 176; or consent of instructor.
Construction and use of materials and equipment applicable to speech therapy; clinical techniques in speech correction, including case histories, interviews and speech tests; parent and teacher counseling. May be repeated to a total of four units.

180A. Field Work in Clinical Practice in Speech Correction (1 or 2) I, II, Summer
Prerequisites: Speech Arts 100, 170, 174, and 176; or consent of instructor.

Supervised work with representative speech problems; "staffing" of cases; speech testing; record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

180B. Field Work in Clinical Practice in Hearing Problems (1 or 2) I, II, Summer
Prerequisites: Speech Arts 171, 177, and 178; or consent of instructor.

Supervised work with pure tone and speech audiometric testing of all ages; hearing therapy, "staffing" of cases, record keeping. Maximum credit eight units for both 180A and 180B. Not more than three units of 180A and 180B may be taken for graduate credit.

181. Radio and Television Station Operation and Management (4) I, II
One lecture and nine hours of scheduled activity.

Prerequisites: Speech Arts 80, 81, 82, 83, and consent of instructor.

This course is Core I in the major in Radio and Television Broadcasting. Administration and organization of radio and television stations and related agencies. Operational procedures for KEBS-FM, CCTV, and ETV programming over local channels. Experience in station departments, such as traffic, continuity, music, graphics. Development of broadcasting operational methods.

182. Technical Operations and Staging for Radio and Television (4) I, II
One lecture and nine hours of scheduled activity.

Prerequisites: Speech Arts 56, 80, 81, 84, and consent of instructor.

This course is Core II in the major in Radio and Television Broadcasting. Production elements of radio, television, and film, to include sound effects, audio techniques, recording and kinescoping, video techniques, art and graphics, scene design and set decoration, film editing and film techniques. Experience in the various technical and production specialties of radio and television program production for KEBS-FM, CCTV, and ETV.

183. Program Planning and Development for Radio, Television, and Film (4) I, II
One lecture and nine hours of scheduled activity.

Prerequisites: Speech Arts 80, 81, 82, 83, 84, 187, and consent of instructor.

This course is Core III in the major in Radio and Television Broadcasting. The development of program ideas into production formats for radio, television, and filmed programs of all types, such as news, music, dramatic, instructional. Radio, television, and film writing. Experience in developing and writing programs for KEBS-FM, CCTV, and ETV. Students will serve as producers of radio, television, and film programs.

184. Production Directing and Presentation for Radio, Television, and Film (4) I, II
One lecture and nine hours of scheduled activity.

Prerequisites: Speech Arts 56, 81, 82, 83, 84, 159, 187, and consent of instructor.

This course is Core IV in the major in Radio and Television Broadcasting. Development of directorial techniques and procedures for all types of programs in the media of radio, television, and film. Emphasis on the principles of presentational techniques and picture composition. Experience in directing and performance in programs presented over KEBS-FM, CCTV, and ETV over local television channels. Students serve as directors, announcers, actors, etc., for broadcast activities.

187. Radio and Television News (3) I, II
(Same course as Journalism 104)

Gathering, writing, and editing news in special forms required by radio and television; processing wire service copy, still pictures and kinescopes; filming, editing and scripting news on motion pictures; using recorders to report special events.

188. Senior Project in Broadcasting (3) I, II

Limited to students with the major in Radio and Television Broadcasting, leading to the B.S. degree.

Student must demonstrate proficiency in a phase of broadcasting from development of a program idea through production for either radio, television, or film. A research paper may be substituted at the discretion of the adviser if the project chosen does not involve production.

190. Rhetorical Theory (3) II

An analysis of rhetorical theory with special attention to Plato, Aristotle, Cicero, Quintilian, Cox, Wilson, Blair, Campbell, Whately, Bain, and modern authors on public speaking. The development of a theory and rhetorical criticism, culminating in a critical evaluation of contemporary public address.

191. Organized Discussion (3) II

Prerequisite: Speech Arts 60A or 60B, or consent of instructor.

A study of the principles of group discussion. Consideration of the symposium, the panel, the open forum, the business session, and conference speaking. Emphasis upon preparation and presentation.

192A-192B. Advanced Public Speaking (3-3)

Prerequisite: Speech Arts 4.

Emphasis upon the preparation and delivery of longer speeches. Study of classic models of public address.

199. Special Study (1-6) I, II

Individual study. Six units maximum credit.

Prerequisite: Consent of instructor.

EXTENSION COURSES

Lower Division

X-6. Speech Workshop for Stutterers (3)

Participation by stutterers in various techniques designed to alleviate stuttering blocks. May be repeated to a maximum of six units.

Upper Division

X-175. The Role of Parents in Problems of Speech Correction (2) (Extension)

Assistance to parents in understanding the speech-handicapped child. Open to parents of children with a speech problem. May be repeated for a total of four units.

GRADUATE COURSES

208. Seminar in Oral Interpretation (3)

Prerequisite: Speech Arts 108 or equivalent.

Aesthetic discipline applied to oral interpretation of various forms of literature. Analysis of thought and emotional content, and aesthetic form. Investigation of advanced problems of delivery. May be repeated once with new content for maximum of six units.

243. Seminar in Staging Practices for Theater and Television (3)

An investigation of the recent developments of modern staging facilities. The application of technological advances and electro-mechanical devices to the scenic arts for theater and television.

244. Seminar in Stage Direction (3)

Prerequisite: Speech Arts 159.

A discussion of the aesthetic principles and the practices of stage direction with an emphasis on styles and historical periods.

245. Seminar in Lighting for Stage and Television (3)

Prerequisite: Speech Arts 145.

Discussion of principles concerned with the aesthetic and the technical problems of lighting in stage and television.

246. Seminar in Design for Stage and Television (3)
The principles of design in the theater with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. Each section may be taken once for credit.

A. Costume Design
  Prerequisite: Speech Arts 152.

B. Scenery Design
  Prerequisites: Speech Arts 140A, 140B, and 156.

247. Seminar in History of the Theater and Drama (3)
Prerequisites: Speech Arts 154A and 154B.
Detailed examination of the important periods, personalities, and theater structures in connection with this general field.

271. Seminar: Functional Problems of Speech (3)
Prerequisites: Speech Arts 173, 174 and 176, or consent of instructor.
Theoretical consideration of etiologies and symptomatologies of speech disorders; principles of nonmedical therapy; survey of theories and experiments relating to functional speech disorders.

272. Seminar: Organic Speech Disorders (3)
Prerequisites: Speech Arts 172, 174 and 176, or consent of instructor.
Survey of theories and experiments relating to organic speech disorders and their management.

280A. Advanced Field Work in Clinical Practice in Speech Correction (1 or 2)
Prerequisites: Speech Arts 174 and 176, or consent of instructor.
Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies, etc. May be repeated for a maximum of four units, only two of which may be used for graduate credit on a master's degree.

280B. Advanced Field Work in Clinical Practice in Hearing Problems (1 or 2)
Prerequisites: Speech Arts 171, 177, and 178; or consent of instructor.
Advanced casework in hearing evaluation, record keeping, research problems, and therapy (auditory training, lipreading, speech correction for hard of hearing or deaf, and language building). May be repeated to a maximum of four units, only two of which may be used for graduate credit on a master's degree.

281. Seminar in Broadcasting (3)
Reports and discussion involving research in some aspect or problem in radio and television broadcasting. This seminar analyzes procedure and trends in educational and commercial broadcasting. Two of the following seminar topics may be taken for a total of six units:

A. Management
  Prerequisites: The equivalent of an undergraduate major in broadcasting, Speech Arts 181, and consent of instructor.

B. Programming
  Prerequisites: The equivalent of an undergraduate major in broadcasting and Speech Arts 183, 184, and consent of instructor.

C. Audience Measurement and Research
  Prerequisites: The equivalent of an undergradute major in broadcasting, Political Science 122, Psychology 122, and consent of instructor.

D. Writing
  Prerequisites: The equivalent of an undergraduate major in broadcasting, Speech Arts 118A, 118B, 183, 184, English 195A, and consent of instructor.

292. Methods in Research and Bibliography (3)
The use of basic, reference books, journals, pertinent bibliographies, and other methods of research in the various areas of speech and theater.

293. Seminar: Greek and Roman Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

294. Seminar: 18th Century British Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

295. Seminar: American Public Address—1700-1900 (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

297. Seminar: Contemporary American Public Address (3)
Prerequisites: Speech Arts 190 and 192A or 192B.

298. Special Study (1-6)
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Guidance in the preparation of a project or thesis for the master's degree.

ZOOLOGY

IN THE DIVISION OF THE LIFE SCIENCES

Faculty

Professors: Crawford, R. (Chairman), Crouch, Harwood
Associate Professors: Bohnsack, Huffman, Norland
Assistant Professors: Collier, Cox, Etheridge, Farris, Hunsaker, Plymale

Offered by the Department

Master of arts degree with a major in biology and an emphasis in zoology; a master of arts degree for teaching service with a concentration in zoology. (Described in the Graduate Bulletin. Also refer to the section in this catalog on the Graduate Division.)

Major in zoology with the A.B. degree in liberal arts and sciences. (Described in the section on the College of Arts and Sciences.)

Major in zoology with the B.S. degree in applied arts and sciences. (Described in the section on the General Programs.)

Minor in zoology. (Described in the section on the General Programs.)

LOWER DIVISION COURSES

8. Human Anatomy (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: An introductory course in high school or college biology or zoology.
Systems of the human body and their interrelationships.

9. Human Physiology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Zoology 8 or 51; Chemistry 2A-2B.
Functions of the human body: emphasis on the circulatory, muscular, and nervous systems. Not open for credit to students with credit for Zoology 22.

22. Principles of Human Physiology (3) II
Prerequisite: A college course in biology or human anatomy.
A lecture course in the principles of human physiology with special emphasis on nerve and muscle physiology. Not open to students with credit for Zoology 9.

23. Human Physiology Laboratory (1) II
Three hours of laboratory.
Prerequisite: Zoology 22 or concurrent registration.
Laboratory work in human physiology. Not open to students with credit for Zoology 9.

50. Invertebrate Zoology (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Structure, function, relationships and significance of invertebrate animals as shown through a study of selected invertebrate types.

60. Vertebrate Zoology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
An introductory course in the biology of the vertebrates with emphasis on the vertebrate organism as a whole: anatomy, physiology, development and evolution.

UPPER DIVISION COURSES

100. Embryology (4) I, II
Two lectures and six hours of laboratory.
Prerequisites: Biology 5, or Biology 3 and consent of instructor.
The development of vertebrates as illustrated by the frog, chick, and pig.

106. Comparative Anatomy of the Vertebrates (4) I, II
Two lectures and six hours of laboratory.
Prerequisite: Biology 5.
Dissection, study and comparison of organ systems of typical vertebrates. (Formerly Zoology 51.)

108. Histology (4) II
Two lectures and six hours of laboratory.
Prerequisites: Either Biology 5 or 3 and 4. Recommended: Zoology 100.
A study of the microscopic structures and differentiation of tissues and organs of the vertebrates, especially mammals.

112. Marine Invertebrates (4) I
Two lectures and six hours of laboratory or field work.
Prerequisites: Biology 5, or Biology 4 and consent of instructor.
Identification and study of behavior and life histories of invertebrates of the San Diego region. Frequent collecting trips to the beaches required.

114. Natural History of the Vertebrates (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 60.
Natural history, distribution, and classification of vertebrate animals; emphasis on local forms.

115. Ichthyology (4) I
Two lectures and six hours of laboratory.
Prerequisites: Biology 15 and Zoology 60.
Evolution, interrelationships, structure, identification, habits, and ecology of fishes.

117. Ornithology (4) II
One lecture and six hours of laboratory or field excursions, and a field project.
Prerequisites: Biology 5, or Biology 4 and consent of instructor.
The study and identification of birds, especially those of the Pacific Coast and the San Diego region.

119-S. Field Zoology (4) Summer
Two lectures and six hours of laboratory.
Prerequisite: A course in college biological science or consent of instructor.
Observational methods; collecting techniques; identification, ecology, and behavior of southern California animals. Primarily for students not majoring in the Life Sciences Division.

121. General Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50.
Structure, physiology, natural history, and classification of insects.

122. Advanced Entomology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Zoology 121.
Intensive treatment of the areas introduced in Zoology 121.

123. Immature Insects (3) II
Two lectures and three hours of laboratory.
Prerequisite: Zoology 121.
Collection, preservation, identification, and biological study of the immature stages of the different insect orders. Course designed to meet the needs of students specializing in invertebrate zoology, agricultural and medical entomology, parasitology, and systematics.

125. Economic Entomology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Botany 51.
Course designed for students of agriculture and horticulture. Emphasis is placed on determination and control of insects affecting plants. Quarantine measures are also studied.

126. Medical Entomology (3) I
Two lectures and three hours of laboratory.
Prerequisite: Zoology 50 or 60 or Microbiology 101.
The role of insects and other arthropods in transmission and causation of human diseases.

128. Parasitology (4) I
Two lectures and six hours of laboratory.
Prerequisite: Zoology 50 or Microbiology 101.
Study of animal parasites with special reference to those of man. Laboratory including identification of important parasites of man, and collection and preservation of local forms.

142. Comparative Animal Physiology (4) II
Two lectures and six hours of laboratory.
Prerequisite: Biology 101 or consent of instructor.
The functional and phylogenetic aspects of responses and nutrition throughout the animal kingdom.

164. Human Genetics (4)
Two lectures and six hours of laboratory.
Prerequisites: Biology 15 and either Zoology 60 or 100 or 106.
Principles of genetics as related to human biology with consideration of the applied fields of medical genetics, genetic counseling, and population studies. Premedical and predental students majoring in zoology may substitute this course for Biology 155 to satisfy the requirements for the major. Students with credit for Zoology 165 may enroll but will receive only two additional units of credit.

165. Human Heredity (3) I, II
Prerequisite: A college course in biology.
Selected principles of human inheritance with emphasis on relationships to other fields of human studies. Not open to students with credit in Biology 155 or Zoology 164.

166. Honors Course (Credit to be ararnged) I, II
Refer to the Honors Program.

199. Special Study (1-6) I, II
Individual study. Six units maximum credit.
Prerequisites: 15 units in zoology with a grade of A or B and consent of instructor.

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.

An intensive study of a selected topic in advanced zoology. May be repeated with new content for additional credit.

298. Special Study (1-6)
Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Guidance in the preparation of a project or thesis for the master's degree.

ADDENDA

FINANCIAL AID

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FINANCIAL AID

LOANS

Financial aid is available through San Diego State College to full-time students who meet specific qualifications established by the Faculty Committee on Student Loans.

SAN DIEGO STATE COLLEGE FOUNDATION LOAN PROGRAM

Both emergency and regular loans are made to students who have completed at least one semester at San Diego State and have demonstrated ability to do satisfactory work. Applicants are considered on the basis of college-related need. The maximum amount available through this program is $500 with repayment arranged according to individual circumstances. Most loans under the Foundation Loan Program are interest free. Applications are available throughout the college year.

Individuals and organizations have established the following San Diego State College Foundation Loan Funds:

Alumni Athletic Fund
Anna L. Davis Memorial Fund
Associated Students Fund
Colver Waller Memorial Fund
Concordia Frauen Verein Fund
Cubic Corporation Fund
Delta Kappa Gamma Fund
DeWitt Bisbee Williams Memorial Fund
Dr. C. G. Osborn Memorial Fund
Dr. Ralph J. Scanlan Memorial Fund
Edward and Edwina Moore Memorial Fund
Edward L. Hardy Memorial Fund
E.I. Foundation Fund
Faculty Dames Fund
Harvey L. Lewis, Jr., Memorial Fund
Henry Earl Stanton Memorial Fund
Hillcrest Lions Club Fund
Imperial Valley Fund
Institute of Radio Engineers Fund
Joan Jennings Memorial Fund
Kiwanis Club of College Area Memorial Fund
La Mesa Rotary Club Fund
La Mesa Womens Club—Evening Division Fund
Laura E. Settle C.R.T.A. Fund
Lemon Grove Kiwanis Memorial Fund
Leola Leahy Memorial Fund
Lewis B. Lesley Memorial Fund
Lions Club of San Diego Fund
Martha Farnum Memorial Fund
Maude Holcomb Lydick Fund
Mission Beach Womens Club Fund
R. J. Pickard Fund
Rotary Club Visa Fund
San Diego Federal Savings and Loan Association Fund
San Diego State College Fund
San Diego State College Memorial Fund
Scottish Rite Fund
SDSC Alumni Association Life Membership Fund
Solar Aircraft Co. Management Club Fund
Thursday Club Fund
USS Horace A. Bass Fund
Will C. Crawford Memorial Fund
W.L. Nida Fund

NATIONAL DEFENSE STUDENT LOAN PROGRAM

Long term loans under Title II of the National Defense Education Act of 1958 are available for qualified students who have been accepted for admission or are enrolled as full-time students. Entering freshmen and transfer students are eligible to apply for these loans, and are considered on the basis of college related need and ability. Special consideration is given to students with superior background and a desire to teach, and students with superior capacity or preparation in mathematics, science, engineering, or a modern foreign language. The maximum amount available is $1,000 per academic year with a total of $5,000 over five years, if able to show continuous need. Repayment extends up to ten years after completion of full-time attendance, with interest of 3% per annum beginning 12 months after the borrower leaves college. A borrower may earn forgiveness of 10% of his loan, plus interest, for every year he teaches in a public elementary or secondary school, to a maximum of 50% of the total borrowed.

APPLICATION DEADLINE

Applications for National Defense Student Loans are available only between April 1 and June 14, 1963, for the 1963-1964 academic year. All other applications are available throughout the college year.

OTHER LOAN PROGRAMS

San Diego State provides other opportunities for students to finance their college expenses by participation in the United Student Aid Funds Loan Program. Up to $1,000 per year is available to students who have completed their freshman year and meet the qualifications under this program. Repayment starts after the student leaves college and may extend for three years. Interest is 6% simple, beginning at the time the loan is granted.

Local service organizations and clubs make available special loans to students meeting their qualifications. Information regarding these programs is available upon request.

Applications for financial aid and additional information may be secured through the Office of the Assistant to the Dean of Students, San Diego State College.

SCHOLARSHIPS

APPLICATIONS FOR SCHOLARSHIPS

Most donors of scholarships at San Diego State have chosen to grant moneys to students who have academically proven themselves for at least one semester at San Diego State College; therefore, the college can award only a few music, athletic, and general scholarships to incoming students.

Scholarships ranging from $50 to $500 are granted to outstanding students by the Faculty Committee on Scholarships. Applications for scholarships for the academic year 1963-1964 may be secured in AD-226 of the Administration Building. Applications should be filed in October for the spring semester and in March for the fall semester.

Many of the scholarships available in the college are for students in specific programs; many are awarded to students directly by donors, and administered by the college. Each semester the committee announces, in the campus paper and to all faculty and students, a list of available awards and the procedures to be followed in applying for them. All students in the college are encouraged to be alert for these announcements, and to consult with their advisers and departments about scholarships in their fields of study.

A scholarships brochure will be mailed if request is made to the Activities and Scholarships Office, San Diego State College, San Diego 15, California.

SCHOLARSHIPS AWARDED IN HIGH SCHOOLS

Ordinarily, freshmen who enter San Diego State with a scholarship have received the award through their high school scholarships committee. For example, the DeWitt Bisbee Williams Memorial offers a $100 scholarship to each high school in San Diego City and County for a member of the California Scholarship Federation. The faculty scholarship committee of each high school selects its scholarship recipient from students who have been CSF members for at least two semesters and have qualifications for admission to San Diego State.

FOREIGN STUDENT APPLICATIONS

There are no scholarships set aside especially for entering students from other countries. These students are encouraged to write to the Committee on Friendly Relations Among Foreign Students, 291 Broadway, New York City, New York.

SCHOLARSHIPS FOR GRADUATE STUDENTS

A few small grants for graduate students are awarded through departmental recommendations of students who have attended San Diego State. Information about departmental assistantships may be obtained by writing to the department in which the applicant is interested.

FACULTY COMMITTEE SCHOLARSHIPS

In addition to more than 600 scholarships granted to students directly by organizations and individuals, the following scholarships are awarded through the Faculty Committee on Scholarships:

Alpha Epsilon-Brenda Beitner
Altrusa Club
American Association University Women
American Institute Industrial Engineers
American Society Civil Engineers
American Society for Metals
Anonymous "E"
Anonymous "MD"
Association for Childhood Education
Aztec Club Athletic Scholarships
Beta Alpha Psi
Blue Key
Brown, Leslie P.
Budd Boyle Memorial Scholarship
Burgener, Clair
Cajon Valley Teachers Association
California Congress P.T.A.
Campus Lab. School Parents
Cap and Gown
Carpenters Union, Ladies Auxiliary
Chi Omega Sorority
Coronado Woman's Club
Del Cerro Woman's Club
Delta Delta Delta
Dow Chemical Company
Dresser, Elizabeth
Executive Secretaries, Inc.
Faculty Dames, San Diego State College
Fireman's Assoc., Ladies Auxiliary
Fleischner, Anna S.
General Dynamics-Astronautics
Golden, Kenneth
Haskins & Sells Foundation
Horace Mann Junior High School
Julius Leib Memorial Scholarship
Kappa Beta Nu
Kappa Delta Pi
Kent Manchester Memorial Scholarship
Kiwanis-Annes
Klicka Foundation
Lemon Grove Teacher's Assoc.
Lions Club of East San Diego
Lions Club of El Cajon
Linkletter, Art
Lodge, Catherine Yuhan
Marcy, May Finney
National League of American Pen Women
Neely Enterprises
Old Mission Rotary
Perry, Fay
Phi Epsilon Phi
Pi Lambda Theta
Porterfield, Avis Scott
Psi Chi
Realty Board of San Diego
San Diego County Women's Auxiliary, Optometric Society
San Diego Human Factors
San Diego Industrial Nurses Assoc.
San Diego Opera Association
San Diego Teachers Association
San Diego Tuberculosis Association
San Diego Woman's Club—Home & Garden Valerian
Scott Foundation—Art Linkletter
Senn, Percie Bell
Sigma Alpha—Gamma Upsilon Chapter
Sigma Alpha Iota Alumnae
Sigma Phi Epsilon
Silvergate Lions Club
Silverman, Anna & David
Solar Recreation
Steinman Award
Stott, Dorothy C.
Stott, Kenneth W.
Thearle Music Company
Trott, Wilmia Tyler
Union-Tribune Charities
Weinberger Award
Western Electronics
Whitney, Guilford H.
Williams, DeWitt Bisbee

FACULTY DIRECTORY

FOR 1962-1963

LOVE, MALCOLM A. (1952) .... President
A.B., Simpson College; M.A., Ph.D., University of Iowa; LL.D., Simpson College.

ACKLEY, JOHN W. (1947) .... Professor of Speech Arts
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

ADAMS, EILEEN (Mrs. Bert) (1949) .... Campus Laboratory School Librarian
A.B., Willamette University; B.S. in L.S., University of Denver.

ADAMS, JOHN R. (1928) .... Chairman, Division of Humanities; Professor of English
A.B., A.M., University of Michigan; Ph.D., University of Southern California.

ADAMS, PHYLLIS J. (Mrs. K.) (1962) .... Assistant Professor of Education
B.S., Northwest Missouri State College; M.A., Ed.D., University of Denver.

ADAMS, WILLIAM J. (1955) .... Associate Professor of Speech Arts
B.S., McMurray College; M.A., Northwestern University; Ph.D., Stanford University.

AHRENS, ROBERT E. (1962) .... Lecturer in Business Law and Finance
Ph.B., University of Chicago; LL.B., Boston University School of Law; M.S., Ph.D., University of Southern California.

AIKEN, EDWIN G. (1962) .... Assistant Professor of Psychology
B.A., San Diego State College; Ph.D., University of Illinois.

ALCORN, MARVIN D. (1941) .... Professor of Education
A.B., Southwestern College; A.M., Teachers College, Columbia University; Ed.D., University of Southern California.

ALLISON, EDWIN C. (1960) .... Assistant Professor of Geology
B.S., M.A., University of California.

AMBLE, KJELL (1962) .... Assistant Professor of Speech Arts
B.A., Denison University; M.A., doctoral candidate, Northwestern University.

ANDERSON, ALLAN W. (1962) .... Assistant Professor of Philosophy
B.A., Washington Missionary College; M.A., Trinity College; Ph.D., Columbia University.

ANDERSON, ARTHUR J. O. (1961) .... Assistant Professor of Anthropology
B.A., San Diego State College; M.A., Claremont Colleges; Ph.D., University of Southern California.

ANDERSON, EVANS L. (1954) .... Associate Professor of Education
B.A., Gustavus Adolphus College; M.A., University of Minnesota; Ed.D., University of Denver.

ANDERSON, GRAYDON K. (1949) .... Professor of Economics
A.B., Willamette University; Ph.D., University of Wisconsin.

ANDERSON, MELVIN A. (1956) .... Dean of Admissions and Records
B.Ed., Northern Illinois State College; M.A., Northwestern University; Ed.D., University of California at Los Angeles.

*ANDERSON, PAUL S. (1955) .... Professor of Education
A.B., Colorado State College; M.S., Ph.D., University of Wisconsin.

ANDERSON, PAUL V. (1954) .... Associate Professor of Music
B.M., North Texas State College; M.M., University of Wisconsin.

ANDERSON, W. CARLISLE (1955) .... Associate Professor of Industrial Arts
B.S., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.

ANDRUS, RUTH (1962) .... Assistant Professor of Physical Education
B.S., Utah State University; M.S., University of Oregon; Ph.D., State University of Iowa.

APPLE, JOE A. (1947) .... Professor of Education
A.B., Southeastern State College; M.A., University of Oklahoma; Ed.D., Teachers College, Columbia University.

ARCHER, ELLIS C. (1956) .... Associate Professor of Business Education
B.S., Northwestern State College; M.S., University of Kansas; Ed.D., Stanford University.

ATKINSON, BEATRICE (1954) .... Assistant Professor of Nursing
B.S., College of St. Scholastica; M.A., San Diego State College.

BABILOT, GEORGE (1956) .... Associate Professor of Economics
A.B., Hastings College; M.A., University of Nebraska; Ph.D., University of Oregon.

BACON, GUINIVERE KOTTER (Mrs. George) (1928) .... Associate Professor of Education
B.S., Utah Agricultural College; M.A., Stanford University; additional graduate study.

BAER, ADELA S. (1962) .... Assistant Professor of Zoology
B.S., University of Illinois; Ph.D., University of California.

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*On leave 1962-63.

BAKER, CLIFFORD H. (1937)........Associate Professor of Spanish
A.B., San Diego Sate College; M.A., University of California; Ph.D., University of Southern California.

BAKER, DOUGLAS L. (1954)........Associate Professor of Education
A.B., Lynchburg College; M.S., Ed.D., University of Southern California.

BAKER, JAMES R. (1962)........Associate Professor of English
B.A., M.A., Ph.D., University of Denver.

BALABANIS, GORDON P. (1962)........Assistant Professor of Economics
A.B., and doctoral candidate, Stanford University.

BALLANTINE, FRANCIS A. (1949)........Professor of Education
A.B., Michigan State Normal College; A.M., Ph.D., University of Michigan.

BARBER, WILLIAM F. (1959)........Associate Professor of Marketing
B.B.A., M.B.A., D.B.A., University of Washington.

BARCKLEY, ROBERT E. (1955)........Associate Professor of Economics
B.S., University of North Dakota; M.A., Columbia University; Ph.D., University of Illinois.

BARCLAY, AGNES B. (1962)........Assistant Humanities Librarian
A.B., San Diego State College; M.A. in L.S., University of Denver

*BARHAM, ERIC G. (1956)........Associate Professor of Zoology
B.A., San Diego State College; Ph.D., Stanford University.

BARNHART, KENNETH EDWIN (1939)........Professor of Sociology
A.B., Southwestern University; B.D., Southern Methodist University; Ph.D., University of Chicago.

BARONE, JOAN F. (1960)........Assistant Professor of Physical Education
B.S., Sargent College, Boston University; M.S., Springfield College, Massachusetts.

BASS, Thomas L. (1962)........Instructor in Physical Education
B.A., San Jose State College.

BASSETT, ALLEN M. (1961)........Assistant Professor of Geology
B.A., Amherst College; M.A., Ph.D., Columbia University.

BATES, WILLIAM M. (1960)........Assistant Professor of Sociology
A.B., Gonzaga University; M.A., College of the Pacific; Ph.D., Washington University.

BAUER, EDWARD G. (1956)........Associate Professor of Engineering
B.S., U. S. Naval Academy; M.S., University of California.

BAXTER, ROBERT J. (1962)........Assistant Professor of Art
B.S., M.S., M.F.A., University of Wisconsin

BEAUCHAMP, I. L. (1962)........Assistant Professor of Physics
B.S., M.P.H., and additional graduate study, University of California.

*BECKER, CALLIE D. (Mrs. E. J.) (1946)........Librarian IV
A.B., Shorter College; A.B. in L.S., Emory University.

BECKER, GERALD A. (1958)........Associate Professor of Mathematics
B.A., M.S., Ph.D., State University of Iowa.

BEDORE, ROBERT L. (1959)........Assistant Professor of Engineering
B.S.M.E., M.S.M.E, Purdue University. Registered Professional Mechanical Engineer.

BELCHER, DAVID W. (1957)........Professor of Management
B.B.A., M.A., Ph.D., University of Minnesota.

BELL, CHARLES B., JR. (1958)........Associate Professor of Mathematics
B.S., Xavier University; M.S., Ph.D., University of Notre Dame.

BENJAMIN, ROBERT L. (1953)........Professor of Speech Arts
A.B., M.S., University of California; Ph.D., University of Wisconsin.

BENTON, CARL W. (1948)........Professor of Physical Education
B.S., University of California at Los Angeles; M.S., Ed.D., University of Southern California.

BERRY, RICHARD W. (1961)........Assistant Professor of Geology
B.S.E.M., Lafayette College; M.A., and doctoral candidate, Washington University.

BIGELOW, MARYBELLE S. (Mrs. K. G.) (1956)........Associate Professor of Art
A.B., M.A., University of California at Los Angeles.

BIGGER, W. RICHARD (1952)........Professor of Political Science
B.A., M.A., University of Wisconsin; Ph.D., University of California at Los Angeles.

BIGGS, MILLARD R. (1958)........Assistant Professor of Music
B.M., Youngstown University; M.F.A., Ohio University; Ph.D., University of Iowa.

BILTERMAN, HENRY L. (1956)........Assistant Professor of Engineering
B.S.E.E., University of Iowa; graduate study at San Diego State College.

BIRCH, AILEEN J. (Mrs. C. E.) (1949)........Assistant Professor of Education
A.B., M.A., San Diego State College.

BLOCK, EDWARD A. (1946)........Professor of English
A.B., M.A., Ph.D., University of California.

BLYTH, JOHN D. (1957)........Associate Professor of Music
B.M., M.M., Illinois Wesleyan University; additional graduate study at Teachers College, Columbia University, and the University of Nebraska.

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*On leave 1962-63.

*BOHNSACK, KURT K. (1956)............Associate Professor of Zoology
B.S., Ohio University; M.S., Ph.D., University of Michigan.

BOLTE, JOHN R. (1962)............Assistant Professor of Physics
B.A., M.A., Iowa State Teachers College; M.S., Oklahoma State University; Ph.D., State University of Iowa.

BORST, RAY (1962)............Assistant Professor of Engineering
B.S.M.E., B.S.A.E., West Virginia University; M.S.M.E., University of Wisconsin.

BOWNE, WILLIAM F. (1959)............Assistant Professor of Art
B.E., M.A., University of California at Los Angeles.

BRADLEY, WALLACE W. (1961)............Instructor in Education
B.S., University of Maryland; M.A., San Diego State College.

BRANDT, CHARLES L. (1957)............Associate Professor of Zoology
B.A., Ph.D., Stanford University.

BRANSTETTER, R. DEANE (1955)............Professor of Mathematics
B.S., B.A., Northeast Missouri State Teachers College; M.S., State University of Iowa; Ph.D., Iowa State College.

BRAY, HENRY G. (1962)............Assistant Professor of Mathematics
B.A., San Diego State College; M.S., Ph.D., Iowa State University.

BRENDT, ELIZABETH A. (1961)............Assistant Professor of Education
B.A., Eastern Washington College of Education; M.A., Reed College.

BRIDENSTINE, DON C. (1956)............Associate Professor of Finance
B.S., University of Oregon; A.M., Ph.D., University of Southern California.

BRIGGS, ROBERT M. (1957)............Associate Professor of Education
A.B., Colorado State College of Education; M.A., Stanford University; Ed.D., Colorado State College of Education.

BROADBENT, HARRY H. (1949)............Associate Professor of Physical Education
A.B., University of Oklahoma; M.S., University of Pennsylvania.

BRODSHATZER, ARTHUR (1956)............Associate Professor of Accounting
B.B.A., City College of New York; M.B.A., New York University; Certified Public Accountant.

BROOKS, BAYLOR (1931)............Associate Professor of Geology
B.A., Stanford University; additional graduate study at University of Arizona and Stanford University.

BROWN, ELIZABETH McPIKE (Mrs. L. P.) (1926)............Professor of French
Ph.B., M.A., Ph.D., University of Chicago; additional graduate study at the Sorbonne, Paris, France; Certificat d'Etudes Francaises; Diplôme de l'Association Générale de Phonétique, Paris, France; Officier d'Académie.

†BROWN, EUGENE P. (1947)............Professor of Accounting
B.S., Southeastern Teachers College; B.A., M.A., University of Oklahoma; additional graduate study at University of Chicago, University of Southern California, University of Mexico, and University of Vermont. Public Accountant.

BROWN, WILLIAM L. (1962)............Assistant Professor of Engineering
B.S.E.E., Professional Degree in Electrical Engineering, Mississippi State University.

BRUCE, PAUL (1957)............Associate Professor of Education
A.B., Antioch College; M.A., Claremont Graduate School; Ph.D., State University of Iowa.

BRYDEGAARD, MARGUERITE A. (Mrs. H.) (1936)............Professor of Education
A.B., San Diego State College; M.A., Ph.D., Claremont Graduate School.

BULLOCK, MARIANNE R. (1962)............Assistant Acquisition Librarian
A.B., University of California at Los Angeles; B.L.S., M.L.S., Texas State College for Women.

BURGESS, WILLIAM C. (1961)............Assistant Professor of Health Education
A.B., M.A., University of North Carolina; Ed.D., Teachers College, Columbia University.

BURNETT, GAIL A. (1947, except 1951-52)............Professor of English
A.B., Randolph-Macon Woman's College; M.A., University of California at Los Angeles; Ph.D., University of Southern California.

BURNS, GENE A. (1961)............Assistant Professor of Engineering
B.S., San Diego State College; M.S., University of Washington.

BURTON, ANITA A. (1962)............Assistant Education Librarian
A.B., University of California; B.S. in L.S., University of Washington.

BURTON, CHARLES R. (1959)............Assistant Professor of Mathematics
B.A., M.A., University of Kansas; M.A., Ph.D., University of California.

BUTLER, ROBERT S. (1962)............Activities Adviser
A.B., San Diego State College.

CAMERON, ROY ERNEST (1929)............Professor of Economics
A.B., Ph.D., University of California.

CAMPBELL, LOIS B. (1947)............Associate Professor of Education
A.B., University of California; M.A., Teachers College, Columbia University.

CANNON, NONA P. (Mrs. R. C.) (1959)............Associate Professor of Home Economics
B.S., Harding College; M.S., University of California; Ed.D., Teachers College, Columbia University.

CAPP, MARTIN P. (1953)............Chairman, Division of Engineering; Professor of Engineering
B.S., M.S., University of Colorado. Registered Professional Engineer and Land Surveyor.

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*On leave Semester II.
†On leave Semester I.

CARLSON, HILDING B. (1948) Professor of Psychology
Ph.B., M.S., Ph.D., University of Chicago.

CARTER, J. E. LINDSAY (1962) Lecturer in Physical Education
Diploma in Physical Education, University of Otago, New Zealand; Teaching Certificate, Aukland Teachers College, New Zealand; M.A., Ph.D., State University of Iowa.

CASE, THOMAS E. (1961) Assistant Professor of Spanish
B.A., St. Thomas College; M.A., Ph.D., State University of Iowa.

CAVE, MARY F. (1946) Assistant Professor of Physical Education
B.S., University of North Dakota; M.A., San Diego State College.

CHADWICK, LEONARD E. (1949) Assistant Professor of Economics
B.S. and additional graduate study at the University of California.

CHARLES, CAROL M. (1961) Assistant Professor of Education
B.A., M.A., Eastern New Mexico University; Ph.D., University of New Mexico.

CLARK, HELEN S. (Mrs. J. G.) (1952) Assistant Professor of Mathematics
B.A., Macalester College.

CLARK, ORRIN H. (1960) Assistant Professor of Physics
A.B., Columbia College; M.A., Columbia University; Ph.D., New York University.

CLEMENTS, H. MILLARD (1962) Assistant Professor of Education
B.A., University of California; M.A., San Francisco State College; doctoral candidate, Stanford University.

COAKLEY, RUTH M. (1961) Assistant Professor of Nursing
B.S., Hunter College of the City of New York; A.M., Teachers College, Columbia University.

COLLIER, GERALD (1961) Assistant Professor of Zoology
B.A., M.A., and doctoral candidate, University of California at Los Angeles.

COMBS, MARGARET E. (1961) Circulation Librarian
A.B., Florida State University; A.B. in L.S., University of North Carolina; M.A., Northwestern University.

COMIN, NORITA N. (1949) Associate Professor of Home Economics
B.S., University of Minnesota; M.A., San Diego State College.

CONLY, JOHN F. (1962) Assistant Professor of Engineering
B.S.M.E., M.S.M.E., University of Pennsylvania; Ph.D., Columbia University.

COOK, SARAH L. (1962) Assistant Sciences Librarian
B.S., M.A., University of New Mexico; M.L.S., University of Oklahoma; Ed.D., University of California.

CORYELL, DONALD D. (1961) Associate Professor of Physical Education
B.A., M.S., University of Washington.

COVENY, CECELIA T. (1957) Associate Professor of Nursing
B.S., University of Minnesota; M.P.H., University of North Carolina.

COVER, CLARENCE B. (1959) Building Program Assistant
B.S., M.A., Ohio State University.

COX, GEORGE W. (1962) Assistant Professor of Zoology
B.A., Ohio Wesleyan University; M.S., Ph.D., University of Illinois.

COX, MARJORIE S. (1961) Assistant Professor of French
A.B., University of Kansas; M.A., University of Colorado; doctoral candidate, University of California.

CRAIG, ROBERT L. (1960) Assistant Professor of Physics
A.B., Doane College; M.S., University of Nebraska; additional graduate study at Universities of Minnesota and Idaho.

CRAIN, MELVIN (1959) Assistant Professor of Political Science
A.B., University of Redlands; M.A., Ph.D., University of Southern California.

CRAWFORD, MAURICE L. (1954) Professor of Business Education
B.S., M.S., University of Utah; Ed.D., University of California at Los Angeles.

CRAWFORD, PATRICIA A. (1961) Assistant Professor of Psychology
B.A., M.A., University of Rochester; Ph.D., University of Minnesota.

CRAWFORD, RONALD W. (1953) Professor of Zoology
A.B., San Diego State College; Ph.D., Cornell University.

CREECH, ELIZABETH R. (Mrs. R.) (1961) Assistant Professor of Education
B.A., M.Ed., Whitworth College, Washington.

CRISLEY, CORNELIUS J. (1962) Assistant Social Sciences Librarian
A.B., University of Pittsburgh; M.L.S., Carnegie Institute of Technology.

CROUCH, JAMES ENSIGN (1932) Chairman, Division of Life Sciences; Professor of Zoology
B.S., M.S., Cornell University; Ph.D., University of Southern California.

*CROW, WAYMAN J. (1957) Associate Professor of Psychology
B.A., M.A., Ph.D., University of Colorado.

CRUM, CLYDE E. (1955) Associate Professor of Education
B.S., M.S., Kansas State Teachers College; Ed.D., University of Colorado.

CRUTTENDEN, CHARLES H. (1960) Assistant Professor of Geography
A.B., University of California; M.A., Ph.D., Syracuse University.

DAHLKE, HANS J. (1961) Assistant Professor of Engineering
B.S., San Diego State College; M.S., and doctoral candidate, Stanford University.

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*On leave 1962-63.

DANDLIKER, JOHN D. (1960) .... Assistant Professor of Foreign Languages
B.S., M.A., University of Wisconsin; additional graduate study at Universidad de Madrid, Institut de Touraine, and Universities of California and Oregon.

DANIEL, LARK O., III (1955) .... Associate Professor of Psychology
B.A., M.A., Southern Methodist University; Ph.D., Purdue University.

DANIELS, MORRIS J. (1956) .... Associate Professor of Sociology
B.A., Southern Methodist University; M.A., Ph.D., University of Texas.

DARLEY, RICHARD D. (1961) .... Assistant Professor of Marketing
B.S., Cornell University; M.S., University of Missouri; Ph.D., Purdue University.

DAUGHERTY, JACK V. (1959) .... Activities Adviser
B.S., San Diego State College.

DAVIS, ALYCE L. (Mrs. M. H.) (1959) .... Reclassification Librarian
B.S., Alabama State College; M.A., Columbia University; additional graduate study, Simmons College.

DAY, DENNIS G. (1961) .... Assistant Professor of Speech Arts
A.B., College of the Pacific; A.M., Ph.D., University of Illinois.

DEATON, EDMUND I. (1960) .... Assistant Professor of Mathematics
B.A., Hardin-Simmons University; M.A., Ph.D., University of Texas.

DeLORA, JACK R. (1955) .... Assistant Professor of Sociology
B.S., Bowling Green State University; M.A., Western Reserve University; Ph.D., Michigan State University.

de MALIGNON, WILLIAM E. (1960) .... Assistant Professor of Mathematics
B.A., M.A., University of Wisconsin.

DESSEL, NORMAN F. (1961) .... Assistant Professor of Physics
B.A., M.A., Ph.D., State University of Iowa.

DHARMARAJAN, SANGIAH (1960) .... Assistant Professor of Engineering
B.Eng., College of Engineering, Madras, India; M.S., Ph.D., University of Illinois.

DICKEN, CHARLES F. (1962) .... Assistant Professor of Psychology
B.A., M.A., Ph.D., University of Minnesota.

DICKINSON, JOHN W. (1962) .... Assistant Professor of English
A.B., University of California, Santa Barbara; A.M., Ph.D., University of California, Los Angeles.

DIRKS, JOHN H. (1947) .... Associate Professor of Art
A.B., San Diego State College; M.F.A., Claremont Graduate School.

DODDS, LOWELL J. (1957) .... Associate Professor of Accounting
A.B., University of Redlands; M.B.A., University of Denver. Certified Public Accountant.

DORFMAN, DONALD D. (1962) .... Assistant Professor of Psychology
B.A., University of Pennsylvania; M.A., Ph.D., University of Michigan.

DORRIS, HELEN L. (1952) .... Associate Professor of Home Economics
B.S., Southern Illinois University; M.S., and additional graduate study, University of Illinois.

DU BOIS, EDWIN A., JR. (1960) .... Assistant Professor of Education
A.B., B.S., Southwest Missouri State College; M.Ed., Ed.D., University of Missouri.

DuFAULT, DAVID V. (1962) .... Lecturer in History
B.A., M.A., Occidental College; additional graduate study, University of Oregon.

DUKAS, VYTAS (1959) .... Assistant Professor of Foreign Languages
A.B., M.A. (Russian), M.A. (German), and additional graduate study, University of Michigan.

EAGLE, JOHN E. (1946) .... Professor of Mathematics
B.S., Montana State College; M.A., Ed.D., Stanford University.

EARNEST, SUE W. (Mrs. L. E.) (1947) .... Professor of Speech Arts
A.B., San Diego State College; M.A., Ph.D., University of Southern California.

EASON, ROBERT G. (1960) .... Assistant Professor of Psychology
A.B., M.A., Ph.D., University of Missouri.

EIDEMILLER, DONALD I. (1956) .... Associate Professor of Geography
B.A., San Diego State College; M.A., University of California; Ph.D., Indiana University.

ELLIOTT, DELBERT S. (1961) .... Assistant Professor of Sociology
B.A., Pomona College; M.A., Ph.D., University of Washington.

EMERSON, ARTHUR T. (1952) .... Assistant Professor of Mathematics
B.S., U. S. Naval Academy; additional graduate study at Naval War College.

EPLER, MILDRED R. (Mrs. E. E.) (1961) .... Assistant Professor of Education
A.B., M.A., San Diego State College.

ETHERIDGE, RICHARD E. (1961) .... Assistant Professor of Zoology
B.S., Tulane University; M.S., Ph.D., University of Michigan.

EZELL, PAUL H. (1956) .... Associate Professor of Anthropology
B.A., M.A., Ph.D., University of Arizona.

FALK, CHARLES J. (1957) .... Associate Professor of Education
S.T.B., S.T.L., S.T.D., Urban University, Rome, Italy; additional graduate study at Claremont Graduate School.

FARRIS, DAVID A. (1960) .... Assistant Professor of Zoology
A.B., Indiana University; Ph.D., Stanford University.

FEIERABEND, IVO K. (1959) .... Associate Professor of Political Science
B.A., M.A., University of Southern California; Ph.D., Yale University.

FELDMAN, DAVID (1962) .... Assistant Professor of Sociology
A.B., San Diego State College; M.A., Ph.D., Stanford University.

FENG, YAN KWANG (1962) Assistant Professor of Mathematics
B.S., Taiwan Normal University, China; M.A., University of Missouri.

FERREL, DALE B. (1957) Associate Professor of Accounting
B.S., M.B.A., University of Denver. Certified Public Accountant.

FINCH, WILLIAM A., JR. (1961) Assistant Professor of Geography
B.A., East Carolina College; M.A., University of Oklahoma; additional graduate study, University of Illinois.

FISCH, ARLINE M. (1961) Assistant Professor of Art
B.S., Skidmore College; M.A., University of Illinois.

FISHBURN, CLARENCE E. (1955) Associate Professor of Education
A.B., Arizona State College, Tempe; M.A., Arizona State College, Flagstaff; Ed.D., Stanford University.

FISHER, J. SHERRICK (1953) Associate Professor of Education
B.S., Bethany College; M.A., Teachers College, Columbia University; Ph.D., University of Pittsburgh.

FITZ, RICHARD A. (1959) Associate Professor of Engineering
B.S., Baldwin-Wallace College; M.S. (Ch.E.), Ph.D., Ohio State University.

FLAGG, DENIS A. (1955) Associate Professor of Economics
B.A., Harvard College; Ph.D., University of California.

FLYE, RICHARD C. (1950) Assistant Professor of Music
B.A., University of Virginia; M.A., and Professional Diploma, Columbia University.

FORD, WALTER B. (1953) Assistant Professor of Industrial Arts
B.E., Santa Barbara State College; graduate study at Claremont Graduate School.

FOUNTAIN, LEONARD D. (1960) Assistant Professor of Mathematics
A.B., S.M., University of Chicago; Ph.D., University of Nebraska.

FOX, KATHLEEN (1962) Assistant Professor of Physical Education
B.S., Kansas State Teachers College; M.A., State University of Iowa; additional graduate study, University of Southern California.

FREITAS, WILLIAM J. (1959) Assistant Professor of Foreign Languages
A.B., San Jose State College; M.A., Ph.D., Stanford University.

FREY, LEONARD H. (1956) Associate Professor of English
A.B., Dartmouth College; M.A., Ph.D., University of Oregon.

FRIEDRICH, KURT (1949) Professor of Education
A.B., Columbia College; M.A., Columbia University; Ed.D., Columbia Teachers College.

FULKERSON, E. GLEN (1954) Professor of Education
B.E., Southern Illinois University; M.A., Ed.D., University of California at Los Angeles.

GALBRAITH, OLIVER, III (1955) Assistant Professor of Management
B.S., M.B.A., Northwestern University; additional graduate study at University of California at Los Angeles.

GALLUP, AVERY H. (1952) Professor of Botany
A.B., San Diego State College; M.A., Claremont Graduate School; Ph.D., University of Michigan.

GANONG, CONSTANCE L. (1954) Assistant Professor of Nursing
B.S., University of Minnesota; M.A., San Diego State College.

*GARRISON, JOHN D. (1956) Professor of Physics
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

GASTIL, R. GORDON (1959) Associate Professor of Geology
A.B., Ph.D., University of California.

GATES, GERALD F. (1955) Associate Professor of Education
B.F.A., Syracuse University; M.F.A., University of Colorado; M.A., Ed.D., University of Denver.

†GEGA, PETER C. (1955) Associate Professor of Education
A.B., M.S., Ed.D., University of Southern California.

GELLENS, JAY H. (1961) Assistant Professor of English
B.A., Kenyon College; M.A., Ph.D., Yale University.

GENERALES, MINOS D. (1949) Professor of Political Science
Degree in Law and Political Science, University of Athens; additional graduate study at the University of Paris Law School and Institute of International Studies, Paris and Geneva.

GENZLINGER, CLEVE K. (1957) Associate Professor of Music
B.M., M.M., University of Nebraska; additional graduate study at Teachers College, Columbia University.

GERE, BARBARA J. (1962) Instructor in Education
B.A., San Diego State College.

*GIBSON, ERNEST DANA (1947) Professor of Business Education
B.S., University of Minnesota; M.A., Colorado State College of Education; Ed.D., New York University.

GIFFORD, ADAM (1954) Associate Professor of Economics
B.A., Portland University; M.A., Stanford University; Ph.D., University of Washington.

GILBERT, MARGARET L. (Mrs. A. V.) (1958) Registrar
A.B., San Diego State College.

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*On leave 1962-63.
†On leave Semester II.

GILCHRIST, SARAH E. (1960) .... Assistant Professor of Nursing
Diploma, Evangelical Hospital School of Nursing; B.S., Indiana University; M.P.H., University of Michigan.

GILLETTE, THOMAS L. (1961) .... Assistant Professor of Sociology
A.B., University of Missouri; M.A., University of Kansas City; Ph.D., University of North Carolina.

GINDLER, HERBERT A. (1960) .... Assistant Professor of Mathematics
B.B.A., University of Minnesota; Ph.D., University of California at Los Angeles.

GJERDE, CLAYTON M. (1948) .... Professor of Education
A.B., Augsburg College; M.A., Ph.D., University of Minnesota.

GLASGOW, JANIS M. (1962) .... Assistant Professor of French
B.A., Western Reserve University; M.A., University of Wisconsin; additional graduate study, University of California at Los Angeles.

GOLDKIND, VICTOR (1961) .... Assistant Professor of Anthropology
B.S., George Washington University; M.A., Ph.D., Michigan State University.

GOVERNALI, PAUL (1956) .... Professor of Physical Education
B.A., Columbia College; M.A., Ed.D., Teachers College, Columbia University.

GRANRUD, CAROLYN A. (1960) .... Assistant Social Sciences Librarian
B.A., St. Olaf College; B.S. in L.S.. University of Minnesota.

GRAWUNDER, RALPH M. (1955) .... Associate Professor of Health Education
B.S., The Rice Institute; M.A., Ed.D., Teachers College, Columbia University.

GRAY, ROBERT T. (1956) .... Professor of Education
A.B., M.Ed., Ed.D., University of Kansas.

GREEN, EUGENE (1961) .... Assistant Professor of English
B.A., M.A., Ohio State University; Ph.D., University of Michigan.

*GRIFFIN, ELIZABETH (Mrs. D.) (1960) .... Assistant Professor of Physical Education
B.S., State Teachers College, Brockport, New York; M.S., Indiana University.

GRIPP, RICHARD C. (1958) .... Associate Professor of Political Science
A.B., Whittier College; A.M., Ph.D., University of Southern California.

GRISIER, DONALD W. (1951) .... Professor of Education
B.S., Bowling Green State University; M.A., Ed.D., Teachers College, Columbia University.

GROFF, PATRICK J. (1955) .... Associate Professor of Education
B.S., M.S., University of Oregon; Ed.D., University of California.

GROSS, GEORGE C. (1961) .... Assistant Professor of English
A.B., M.A., San Diego State College; Ph.D., University of Southern California.

GROSSBERG, JOHN M. (1962) .... Assistant Professor of Psychology
A.B., Brooklyn College; M.A., Ph.D., Indiana University.

GRUBBS, EDWARD J. (1961) .... Assistant Professor of Chemistry
A.B., Occidental College; Ph.D., Massachusetts Institute of Technology.

GRUBER, ALAN J. (1962) .... Instructor in Mathematics
B.A., Kent State University; M.A., San Diego State College.

GULICK, SIDNEY L. (1945) .... Dean of Arts and Sciences; Professor of English
B.A., M.A., Oberlin College; Ph.D., Yale University.

HAAK, HAROLD H (1962) .... Assistant Professor of Political Science
B.A., M.A., University of Wisconsin; doctoral candidate: Princeton University.

HALE, E. ALAN (1957) .... Associate Professor of Marketing
B.A., Gustavus Adolphus College; M.A., Ph.D., University of Illinois.

HALFAKER, PHILIP (1962) .... Assistant Professor of Education
B.S., M.A., Ball State Teachers College; Ed.D., Indiana University.

HANCHETT, WILLIAM F., JR. (1956) .... Associate Professor of History
A.B., Southern Methodist University; M.A., Ph.D., University of California.

HANSON, ROBERT F. (1962) .... Lecturer in Recreation
B.A., M.A., Washington State University; additional graduate study, Indiana University.

HARBURY, COLIN D. (1962) .... Visiting Professor of Economics
B.Com., University of London; Ph.D., University College of Wales.

HARDER, DONALD F. (1960) .... Dean of Counseling and Testing
B.S., M.S., Ed.D., University of Kansas.

HARNED, WILLIAM W. (1962) .... Assistant Professor of Accounting
A.B., Asbury College; M.B.A., University of Kentucky; additional graduate study, San Diego State College and University of California, Los Angeles.

HARPER, LEROY A. (1959) .... Associate Professor of Health Education
B.S., M.S., Emporia State Teachers College; Ed.D., Teachers College, Columbia University.

HARRINGTON, AWONA W. (1949) .... Sciences Librarian
A.B. and additional graduate study at San Diego State College; M.S. in L.S., University of Southern California.

HARRINGTON, NEIL J. (1948) .... Associate Professor of Chemistry
B.S., Monmouth College; M.A., San Diego State College; Ed.D., Colorado State College of Education.

HARRIS, BRICE, JR. (1961) .... Assistant Professor of History
B.A., Swarthmore College; M.A., Ph.D., Harvard University.

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*On leave 1962-63.

HARRIS, MARY B. (Mrs. H. P.) (1959)........Serials Catalog Librarian
B.S., San Diego State College; B.A. in L.S., University of Oklahoma; M.S. in L.S., University of Southern California.

HARRIS, RICHARD A. (1959)........Assistant Professor of Speech Arts
B.A., College of Wooster; M.A., Indiana University.

HARRIS, VINCENT C. (1950)........Professor of Mathematics
B.A., M.A., Ph.D., Northwestern University.

HARRISON, ROBERT C. (1953)........Associate Professor of Psychology
B.S., M.S., Ph.D., University of Washington.

HARTIGAN, SELWYN C. (1946)........Business Manager
A.B., San Diego State College.

HARVEY, A. R. (1949)........Professor of Mathematics
B.S., Bates College; A.M., Ph.D., Harvard University.

HARWOOD, ROBERT D. (1928)........Professor of Zoology
A.B., Pomona College; Ph.D., Cornell University.

HASKELL, HARRIET (1940, except 1943-45)........Professor of English
A.B., Mills College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

HAZEN, WILLIAM E. (1962)........Assistant Professor of Zoology
B.S., St. Lawrence University; M.S., Ph.D., University of Michigan.

HELLBERG, LARS H. (1956)........Associate Professor of Chemistry
B.S., Northwestern University; Ph.D., University of California at Los Angeles.

HESS, EDWARD J. (1957)........Technical Services Librarian
B.A., Nebraska State Teachers College; M.A., M.S., University of Southern California.

HILL, WAYNE O. (1955)........Associate Professor of Education
B.A., M.Ed., Eastern Washington College of Education; Ed.D., Stanford University.

HINKLE, JAMES C. (1961)........Assistant Professor of English
B.A., Denison University; M.A., and doctoral candidate, Harvard University.

HIPPAKA, WILLIAM H. (1957)........Associate Professor of Business Law and Real Estate
B.S.C., Jur.D., State University of Iowa.

HODGE, GLENN L. (1953)........Professor of Management
B.S., Kansas State Teachers College; M.S., University of Denver; Ph.D., Louisiana State University.

HOEL, LESTER A. (1962)........Assistant Professor of Engineering
B.C.E., City College of New York; M.C.E., Polytechnic Institute of Brooklyn; D.Eng., University of California.

HOGG, MERLE E. (1962)........Assistant Professor of Music
B.S.Ed., B.S.Mus., Kansas State Teachers College; M.A., M.F.A., Ph.D., State University of Iowa.

HOLMES, CALVIN V. (1956)........Associate Professor of Mathematics
B.A., M.A., University of Mississippi; M.S., University of Illinois; Ph.D., University of Kansas.

HOLMES, DARRELL (1952)........Executive Dean; Professor of Education
B.A., M.A., Ph.D., Ohio State University.

HOLOWACH, FRANK S. (1960)........Assistant Professor of Journalism
B.S., Edinboro State Teachers College, Pennsylvania; M.A., State University of Iowa.

HOLT, HOWARD B. (1961)........Assistant Professor of Education
B.S., Ed.M., Oregon State College; D.Ed., University of Oregon.

HOOVER, GRACE V. (1956)........Assistant Sciences Librarian
A.B., University of Nebraska; B.S. in L.S., University of Denver.

HOPKINS, JACK R. (1961)........Assistant Professor of Art
B.A., California College of Arts and Crafts; M.F.A., Claremont Graduate School.

HOUSEMAN, RICHARD A. (1948)........Professor of Education
B.S., Central Michigan College of Education; M.A., Ed.D., Teachers College, Columbia University.

HUFFER, CHARLES M. (1961)........Professor of Astronomy
A.B., Albion College; A.M., University of Illinois; Ph.D., University of Wisconsin.

*HUFFMAN, EDWARD W. (1955)........Associate Professor of Zoology
B.S., M.S., University of Illinois; Ph.D., Ohio State University.

HULS, Harry E. (1961)........Assistant Professor of Education
B.S., St. Cloud State Teachers College; M.A., Ph.D., University of Minnesota.

HUNGATE, ROBERT P. (1961)........Assistant Professor of Finance
B.A., University of Washington; Ph.D., University of California at Los Angeles.

HUNRICHS, WILLIAM A. (1957)........Associate Professor of Psychology
B.A., M.A., Ph.D., Stanford University.

HUNSAKER, DON, II (1960)........Assistant Professor of Zoology
B.A., M.S., Texas Technological College; Ph.D., University of Texas.

HUNTER, JAMES J., JR. (1946)........Professor of Education
A.B., Cornell University; M.S., Ph.D., Syracuse University.

HURD, LYMAN C., III (1958)........Associate Professor of Music
A.B., M.M., Syracuse University.

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*On leave Semester I.

IKEDA, HITOSHI (1960).......... Assistant Professor of Education
B.A., University of Hawaii; M.A., Iowa State Teachers College; Ed.D., University of New Mexico.

INSKEEP, JAMES E., JR. (1960).......... Assistant Professor of Education
B.S., U.S Naval Academy; M.A., San Diego State College; Ph.D., University of Minnesota.

IRGANG, FRANK J. (1956)..........Associate Professor of Industrial Arts
B.S., Central Michigan College; M.A., Ph.D., University of Michigan.

ISENSEE, ROBERT W. (1948)..........Professor of Chemistry
A.B., Reed College; M.A., Ph.D., Oregon State College.

JACKSON, EVERETT GEE (1930)..........Professor of Art
A.B., San Diego State College; M.A., University of Southern California; additional special study in Mexico.

JACKSON, MAURICE (1962)..........Lecturer in Sociology
B.A., M.A., University of California, Los Angeles.

JAMESON, DAVID L. (1957)..........Associate Professor of Zoology
B.S., Southern Methodist University; M.A., Ph.D., University of Texas.

JAMIESON, THOMAS L. (1962)..........Instructor in Art
B.A., Pomona College; M.F.A., Claremont Graduate School.

JANSSEN, HENRY L. (1953).......... Professor of Political Science
B.A., M.A., University of Oklahoma; Ph.D., University of California.

JENKINS, FREDERIC M. (1961).......... Assistant Professor of French
B.A., Swarthmore College; M.A., and doctoral candidate, University of California.

JENSEN, REILLY C. (1958)..........Associate Professor of Chemistry
B.S., M.S., University of Nevada; Ph.D., University of Washington.

JOHNSON, ARVID T. (1957).......... Professor of History
B.A., Greenville College; M.A., and additional graduate study at the University of Michigan.

JOHNSON, DORIS M. W. (Mrs. M.) (1960)..........Assistant Professor of Education
A.B., M.Ed., and additional graduate study, University of California at Los Angeles.

JOHNSON, EULALIA G. (1962)..........Assistant Professor of Nursing
B.S., Mount St. Mary's College; M.S., University of Colorado.

*JOHNSON, FRANK LOUIS (1939).......... Professor of English
A.B., M.A., University of Minnesota; Ph.D., University of Wisconsin.

JOHNSON, HELENE V. (1962).......... Lecturer in History
B.A., M.A., Los Angeles State College; Ph.D., University of Southern California.

JOHNSON, KENNETH F. (1962)..........Instructor in Political Science
B.A., University of Omaha; M.A., San Diego State College.

JOHNSON, PHILIP E. (1958)..........Associate Professor of Engineering
B.S.C.E., University of Idaho; M.S.C.E., University of California. Registered Civil Engineer.

JONES, KENNETH K., JR. (1948)..........Professor of Speech Arts
B.S., Northwestern University; M.A., Stanford University.

JONES, WALTER D. (1962)..........Assistant Professor of Chemistry
B.S., University of Washington; Ph.D., Oregon State College.

†JOSEPH, LIONEL (1947)..........Professor of Chemistry
B.S., St. Louis University; M.S., Ph.D., Washington University.

JOY, NED V. (1953)..........Professor of Political Science
A.B., Ph.D., University of California.

JULIAN, JAMES L. (1951)..........Professor of Journalism
B.S., B.A., University of Houston; M.A., University of Texas; Ph.D., State University of Iowa.

KAHNG, TAE JIN (1962)..........Assistant Professor of Political Science
B.A., Kent State University; M.A., Ph.D., Columbia University.

KAPLAN, OSCAR J. (1946)..........Professor of Psychology
B.A., M.A., University of California at Los Angeles; Ph.D., University of California.

KASCH, FREDERICK W. (1948)..........Professor of Physical Education
B.S., M.S., University of Illinois; Ed.D., New York University.

KASS, NORMAN (1961).......... Assistant Professor of Psychology
B.A., M.A., Ph.D., Western Reserve University.

KEENEY, JOSEPH SUMNER (1933)..........Professor of English
A.B., Yale University; M.A., Ph.D., University of California.

KENDALL, WILLIS L. (1961)..........Assistant Professor of Education
B.S., Wayne State University; M.A., Miami University, Ohio; Ed.D., University of Maryland.

KENNEDY, CHESTER B. (1937)..........Professor of English
A.B., Chico State College; M.A., Ph.D., Stanford University.

KENNEY, LOUIS A. (1961)..........College Librarian
A.B., Nebraska State Teachers College; B.S. in L.S., M.S. in L.S., University of Illinois; graduate study, University of Zurich; Ph.D., University of Maryland.

KIDWELL, WILLIAM M. (1949)..........Placement Officer; Professor of Psychology
B.A., M.S., University of Oregon; Ed.D., Stanford University.

KILLGROVE, RAYMOND B. (1960)..........Assistant Professor of Mathematics
B.A., M.A., Ph.D., University of California at Los Angeles.

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* On leave Semester II.

† On leave 1962-63.

KILLION, JOHN J. (1955) Physician and Surgeon
B.A., University of Minnesota; M.D., University of Tennessee School of Medicine.

*KINDER, JAMES S. (1953) Co-ordinator of Audio-visual Services; Professor of Education
B.S., Southeast Missouri College; M.A., Ph.D., Teachers College, Columbia University.

KINNON, WILLIAM D. (1956) Associate Professor of Psychology
B.S., Boston University; M.Ed., Trinity University; M.A., Ph.D., University of Denver.

KIRBY, BERNARD C. (1954) Associate Professor of Sociology
A.B., Denison University; M.A., Ph.D., University of Washington.

KITCHEN, JAMES D. (1957) Associate Professor of Political Science
B.A., M.A., Ph.D., University of California at Los Angeles.

KITZINGER, ANGELA M. (1945) Professor of Health Education
A.B., Bernard College, Columbia University; M.A., Teachers College, Columbia University; Ph.D., University of Southern California.

KLANN, CORINNE F. (1962) Assistant Professor of Education
B.A., Western Washington College; M.A., Teachers College, Columbia University.

KLAPP, ORRIN E. (1948) Professor of Sociology
M.A., Ph.D., University of Chicago.

KLEMER, ELIZABETH J. (1953) Associate Professor of Education
B.E., National College of Education; M.A., George Peabody College; graduate study at Teachers College, Columbia University, and Stanford University.

KOEHN, EDNA B. (1958) Assistant Professor of Education
B.S., Moorhead State Teachers College; M.A., Ph.D., University of Minnesota.

KOESTER, GEORGE A. (1950) Professor of Education
B.S., Midland College; M.A., University of Colorado; Ph.D., University of Minnesota.

†KOEVENIG, JAMES L. (1961) Assistant Professor of Zoology
B.A., State University of Iowa; M.A., Iowa State Teachers College; Ph.D., State University of Iowa.

KUBANIS, IVAN J. (1960) Assistant Professor of Political Science
B.A., Ph.D., University of Minnesota.

KUTLER, STANLEY I. (1962) Assistant Professor of History
B.A., Bowling Green State University; M.A., University of Tennessee; Ph.D., Ohio State University.

KVARDA, BETTY L. (Mrs. R.) (1962) Assistant Professor of Mathematics
B.S.Ed., B.A., Bowling Green State University; M.A., Ohio State University; Ph.D., Oregon State University.

LAMBERT, ARTHUR A. (1960) Assistant Professor of Music
B.S., M.A., M.F.A., Ph.D., State University of Iowa.

LAMDEN, CHARLES W. (1946) Chairman, Division of Business Administration; Professor of Accounting
A.B., M.A., University of California at Los Angeles; Ph.D., University of California. Certified Public Accountant.

LANDIS, VINCENT J. (1954) Associate Professor of Chemistry
B.S., Washington State College; Ph.D., University of Minnesota.

LANE, SYLVIA (Mrs. B.) (1961) Assistant Professor of Finance
A.B., M.A., University of California; Ph.D., University of Southern California.

LANGENBACH, ROBERT G. (1959) Associate Professor of Business Education
B.A., M.A., Montana State University; Ed.D., University of California at Los Angeles.

LA PRAY, MARGARET H. (1959) Assistant Professor of Education
B.S., M.A., University of Minnesota; Ph.D., Cornell University.

LAURITSEN, WILLIAM H. (1947) Professor of Health Education
A.B., M.A., University of Nebraska; Ph.D., Ohio State University.

LAWSON, DONALD F. (1956) Associate Professor of Marketing
B.A., Occidental College; M.S., University of Colorado; Ph.D., Ohio State University.

LAWSON, RICHARD H. (1957) Associate Professor of German
B.A., M.A., University of Oregon; Ph.D., University of California at Los Angeles.

LEASURE, JAMES W. (1962) Assistant Professor of Economics
A.B., University of New Mexico; A.M., Ph.D., Princeton University.

LeBARRON, EVANGELINE O. (Mrs. H. E.) (1946, except 1948-49) Associate Professor of Business Education
B.A., B.S., University of Iowa; B.A., Sioux Falls College; additional graduate study at Claremont Colleges, Universities of Southern California, Minnesota and Hawaii.

LEE, GORDON F. (1958) Publications and Public Relations Officer
A.B., Drew University; M.S., Columbia University.

LEE, HAK CHONG (1962) Assistant Professor of Accounting
B.S.B.A., M.B.A., and doctoral candidate, Washington University.

LEE, PHOEBE J. (1960) Assistant Professor of Nursing
Diploma, B.S., Stanford University School of Nursing; M.S., University of California at Los Angeles.

LEE, ROBERT E. (1956) Associate Professor of Speech Arts
B.A., M.A., University of Nebraska.

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* On leave Semester I.

† On leave 1962-63.

LEIFFER, DONALD B. (1948)....Professor of Political Science
A.B., University of California at Los Angeles; M.A., Ph.D., Harvard University.

LEMME, MAURICE M. (1948)....Dean of the Graduate Division; Professor of Mathematics
A.B., Oakland College; M.A., Indiana University; Ph.D., Purdue University.

LEMUS, GEORGE (1960)....Assistant Professor of Spanish
Study at the Universidad Nacional Autónoma de México; B.A., M.A., Ph.D., University of Texas.

LEONARD, CAROLYN M. (Mrs. L.) (1961)....Assistant Catalog Librarian
B.A., Hastings College; M.A., University of Denver.

LEUKEL, FRANCIS P. (1956)....Associate Professor of Psychology
B.S., University of Florida; M.S., Northwestern University; Ph.D., University of Washington.

LEWIS, KATHRYN (1962)....Assistant Professor of Physical Education
B.S., Brigham Young University; M.A., Long Beach State College.

LEWIS, ROBERT A. (1962)....Assistant Professor of Geography
B.S., Oregon State College; M.A., George Washington University; doctoral candidate, University of Washington.

LIENERT, CHARLES (1954)....Associate Professor of Education
B.E., Southern Illinois University; M.S., University of Illinois; Ed.D., Colorado State College of Education.

LINGREN, PAUL A. (1957)....Assistant Professor of Art
B.A., University of California, Santa Barbara College; M.A., University of California at Los Angeles.

LINLEY, JAMES M. (1945)....Professor of Education
Ph.B., University of Chicago; M.S., Ph.D., University of Southern California.

LIVINGSTON, ALFRED M. (1962)....Assistant Professor of Education
A.B., Chico State College; M.A., Ed.D., University of California.

LOCKMAN, EVELYN, (1948)....Associate Professor of Physical Education
B.A., Vanderbilt University; M.A., George Peabody College; graduate study at New York University, and University of Wisconsin; additional special study in dance.

LODGE, CHESTER R. (1954)....Professor of Engineering
B.S.E.E., M.S., Ph.D., State University of Iowa.

LONGENECKER, MARTHA W. (Mrs. J. I.) (1955)....Associate Professor of Art
B.A., University of California at Los Angeles; M.F.A., Claremont Graduate School.

LOOMIS, DAVID M. (1961)....Assistant Professor of Music
B.M., Westminster Choir College; M.M., and additional graduate study, Indiana University.

LOPEZ, GENOVEVO C. (1961)....Assistant Professor of Mathematics
B.A., Ph.D., University of California at Los Angeles.

LOSCHEN, LESLIE R. (1960)....Assistant Professor of Accounting
A.B., Whitman College; M.B.A., Harvard University; additional graduate study, University of Washington. Certified Public Accountant.

LUCE, LAWRENCE W. (1949)....Professor of Industrial Arts
B.S., Illinois Wesleyan University; M.S., Iowa State College; Ed.D., University of California at Los Angeles.

LYNN, ELIZABETH (1963)....Assistant Professor of Nursing
B.A., Linfield College, Oregon; M.S. and additional graduate study, University of Oregon.

MALCOLM, DAVID D. (1953)....Professor of Education
A.B., Harvard College; Ed.M., Boston University; Ph.D., Northwestern University.

MALIK, JIM G. (1957)....Associate Professor of Chemistry
A.B., Wabash College; Ph.D., Michigan State University.

MANN, CHARLES E. (1962)....Assistant Professor of Anthropology
B.A., M.A., Mexico City College; doctoral candidate, Stanford University.

MARCHAND, ERNEST L. (1946)....Professor of English
A.B., M.A., University of Washington; Ph.D., University of Wisconsin.

MARSTERS, HAROLD L. (1962)....Assistant Professor of Industrial Arts
B.A., M.A., Chico State College.

MARTIN, MARY F. (1958)....Assistant Professor of Home Economics
B.S., University of Idaho; M.S., Oregon State College.

*MASTIN, ROBERT L. (1959)....Assistant Professor of Engineering
B.S.E.E., U.S. Naval Academy; Ae.E., California Institute of Technology. Registered Professional Engineer.

MATHES, JOHN C. (1961)....Instructor in English
A.B., A.M., and additional graduate study, University of Michigan.

McARDLE, PATRICK B. (1962)....Instructor in Physics
B.S., University of San Francisco; M.S., San Diego State College.

McBLAIR, WILLIAM (1948)....Associate Professor of Zoology
A.B., San Diego State College; Ph.D., University of California.

McCLINTIC, JOSEPH O. (1946)....Professor of Economics
A.B., Central College; A.M., University of Missouri; Ph.D., University of Wisconsin.

McCLURG, JACK (1962)....Assistant Professor of Philosophy
M.D., State University of Iowa; M.A., Ph.D., University of Chicago.

McCOLLOM, IVAN N. (1946)....Professor of Psychology
A.B., Central Washington College of Education; B.S., M.S., University of Oregon; Ed.D., Colorado State College of Education.

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McCOY, CHARLES R. (1960) ...... Instructor in English
B.A., M.A., Drake University.

McJUNKINS, THOMAS O. (1959) ...... Assistant Professor of Sociology
B.S., Arkansas Baptist College; A.B., Morehouse College; M.A., Atlanta University; additional graduate study at Indiana University.

McLONEY, WIRT L. (1949) ...... Associate Professor of Industrial Arts
A.B., Western State College; M.A., Colorado State College of Education; additional graduate study at University of Southern California.

McMULLEN, JAMES D. (1958) ...... Assistant Professor of Industrial Arts
B.S., M.S., Oregon State College; Ed.D., University of Southern California.

McTAGGART, AUBREY C. (1962) ...... Assistant Professor of Health Education
B.P.E., University of British Columbia; M.S., Ph.D., University of Illinois.

McVAY, BETTE B. (1957) ...... Assistant Professor of Education
B.S., Wisconsin State College; M.A., University of Minnesota.

MENDENHALL, MARY (1939) ...... Professor of Philosophy
B.A., University of Colorado; M.A. University of Southern California; Ph.D., Yale University.

MERRILL, JOHN E. (1946) ...... Associate Professor of History
A.B., Stanford University; A.M., Harvard University; Ph.D., Stanford University.

MERZBACHER, CLAUDE FELL (1947) ...... Associate Professor of Physical Science
B.S., University of Pennsylvania; M.A., Claremont Graduate School; Ed.D., University of California at Los Angeles. Certificat d'Etudes Francaises. Licensed Professional Chemical Engineer.

MESSIER, LEONARD N. (1946) ...... Professor of French
A.B., San Diego State College; M.A., Ph.D., University of California. Officier d'Académie.

MILEFF, EDWARD (1960) ...... Assistant Professor of Health Education
B.S., University of Oklahoma; M.S., Florida State University; Ed.D., Boston University.

MILLS, JACK (1957) ...... Associate Professor of Speech Arts
A.B., M.A., University of Florida; Ph.D., University of Illinois.

MILNE, DAVID S. (1946) ...... Chairman, Division of Social Sciences; Professor of Sociology
A.B., University of California at Los Angeles; M.A., University of Southern California; Ph.D., University of Chicago.

MILOW, E. DEAN (1957) ...... Assistant Professor of Geology
B.S., San Diego State College; graduate study at Stanford University.

MISHNE, ALAN S. (1956) ...... Administrative Assistant
A.B., San Diego State College.

MOE, CHESNEY R. (1931) ...... Professor of Physics
A.B., M.A., Stanford University; Ph.D., University of Southern California, Registered Electrical Engineer.

MOLEK, MARY (Mrs. J.) (1962) ...... Lecturer in Education
B.S., Kansas State Teachers College; M.A., and doctoral candidate, University of Chicago.

MONTEVERDE, JOHN P. (1954) ...... Associate Professor of English
B.A., M.A., Ph.D., University of California at Los Angeles.

MOON, CHARLES R. (1962) ...... Physician and Surgeon
B.S., M.D., University of Arkansas.

MOORE, HAROLD B. (1960) ...... Assistant Professor of Microbiology
A.B., San Diego State College; M.A., Ph.D., University of California at Los Angeles.

MOORE, MARGARET E. (1962) ...... Assistant Professor of Nursing
Diploma, Evangelical School of Nursing; B.S., State University of Iowa; M.S., Indiana University.

MORGAN, CHARLES (1949) ...... Professor of Engineering
M.E., Stevens Institute of Technology; M.S., University of California. Registered Professional Mechanical Engineer.

MORGAN, J. B. (1962) ...... Assistant Professor of Industrial Arts
B.S.Ed., Central Missouri State College; M.Ed., University of Missouri; Ed.D., Colorado State College.

MORRIS, RICHARD H. (1957) ...... Associate Professor of Physics
A.B., Ph.D., University of California.

MOSER, JOSEPH M. (1959) ...... Assistant Professor of Mathematics
B.A., St. John's University, Minnesota; M.A., Ph.D., St. Louis University.

MOSES, DOROTHY V. (1958) ...... Associate Professor of Nursing
B.S., P.H.N., M.S., University of California at Los Angeles.

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MURDOCK, DORIS G. (Mrs. G.) (1960) ...... Catalog Librarian
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MURPHY, MARGARET L. (Mrs. S. U.) (1955) ...... Associate Professor of Physical Education
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MURPHY, MELVIN L. (1962) ...... Assistant Professor of Sociology
A.B., Washburn College; M.A., University of Denver School of Social Work.

MYERS, MABEL A. (1946) ...... Professor of Microbiology
A.B., M.A., Pomona College; Ph.D., Cornell University.

NARDELLI, ROBERT R. (1953) ...... Professor of Education
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NASATIR, ABRAHAM PHINEAS (1928)........Professor of History
A.B., M.A., Ph.D., University of California.

NELSON, BURT (1957)........Associate Professor of Physical Science
B.S., M.S. (Astronomy), M.S. (Philosophy), Ph.D., University of Wisconsin.

NELSON, MYRTHEL S. (1961)........Assistant Professor of Nursing
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NELSON, SHERWOOD M. (1956)........Associate Professor of Philosophy
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NEUNER, EDWARD J., JR. (1957)........Associate Professor of Economics
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NIGRO, FELIX A. (1961)........Professor of Political Science
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NORMAN, NELSON F. (1960)........Assistant Professor of History
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NORWOOD, FRANK W. (1957)........Associate Professor of Speech Arts
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NOWLIN, OWEN W. E. (1957)........Physician and Surgeon
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NYE, NEVA E. (1953)........Professor of Nursing
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NYE, WILLIAM A. (1962)........Assistant Professor of Business Law and Finance
B.S., Ph.D., University of Pennsylvania.

O'BYRNE, ERNEST B. (1954)........Vice President
A.B., A.M., Colorado State College of Education; Ph.D., Stanford University.

O'DAY, EDWARD F., JR. (1957)........Associate Professor of Psychology
B.S., M.A., Ph.D., University of Florida.

O'DELL, ROBERT D. (1957)........Assistant Professor of Industrial Arts
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ODMARK, VERN E. (1952)........Professor of Accounting
B.S., St. Cloud State Teachers College; M.A., University of Minnesota; Ph.D., University of Missouri, Public Accountant.

ØKSENHOLT, SVEIN (1962)........Assistant Professor of German
B.A., Pacific Union College; M.A., University of Nebraska; Ph.D., University of Southern California.

OLDS, CLIFTON C. (1962)........Assistant Professor of Art
B.A., Dartmouth College; M.A., doctoral candidate, University of Pennsylvania.

OLSEN, ALBERT W. (1957)........Director of Athletics; Associate Professor of Physical Education
A.B., M.A., San Diego State College; additional graduate study at University of California at Los Angeles and University of Oregon.

OLSEN, LYLE I. (1961)........Assistant Professor of Physical Education
A.B., M.A., Chico State College; Ed.D., Teachers College, Columbia University.

OLSON, ANDREW C., JR. (1946)........Professor of Zoology
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OLSON, FREDERICK L. (1962)........Lecturer in Speech Arts
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O'NEAL, HARRY E. (1961)........Assistant Professor of Chemistry
B.A., Harvard College; Ph.D., University of Washington.

OUELLETTE, EUGENE G. (1960)........Assistant Professor of Speech Arts
B.A., M.A., University of Redlands; Ph.D., University of Washington.

PADGETT, L. VINCENT (1956)........Associate Professor of Political Science
B.S., Ph.D., Northwestern University.

PARKER, MARION L. (Mrs. D. G.) (1951)........Administrative Analyst
A.B., San Diego State College; M.A., University of Southern California.

PAULIN, HARRY W. (1962)........Assistant Professor of German
B.A., North Central College, Illinois; A.M., Ph.D., University of Illinois.

PEIFFER, HERBERT C., JR. (1937)........Dean of Students; Professor of Psychology
A.B., University of California at Los Angeles; M.A., Ph.D., Stanford University.

PEISNER, EARL F. (1961)........Coordinator of Counseling; Assistant Professor of Education
B.A., Grinnell College; M.A., State University of Iowa; Ed.D., Oregon State College.

PEMBERTON, LEROY R. (1955)........Assistant Professor of Business Education
A.B., A.M., Colorado State College; additional graduate study at University of California at Los Angeles.

PENN, ROBERT (1960)........Assistant Professor of Psychology
B.A., M.A., San Diego State College; Ph.D., Carnegie Institute of Technology.

PERKINS, WILLIAM A. (1955) Associate Professor of English
A.B., Ph.D., Stanford University.

PERSON, GERALD A. (1957) Associate Professor of Education
B.A., Augsburg College; M.Ed., Ph.D., University of Minnesota.

PETERS, LYNN H. (1959) Associate Professor of Management
B.A., LL.B., M.B.A., Ph.D., University of Wisconsin.

PETTEYS, MANVILLE R. (1957) Co-ordinator of Extended Services; Associate Professor of Education
B.A., Willamette University; M.A., Ed.D., Stanford University.

PFAFF, PAUL LEWIS (1931) Professor of Speech Arts
A.B., Stanford University; M.A., Ph.D., University of Southern California.

PHILLIPS, GEORGE L. (1947) Professor of English
A.B., Dartmouth College; M.A., Harvard University; Ph.D., Boston University.

PIERSON, ALBERT C. (1954) Assistant Professor of Management
B.L.A.S., University of Illinois; M.B.S., Harvard University; additional graduate study at Columbia University.

PIFFARD, GUERARD (1956) Associate Professor of Foreign Languages
B.A., M.A., Colorado College; Ph.D., Stanford University.

*PINCETL, STANLEY J., JR. (1955) Associate Professor of History
B.A., M.A., Ph.D., University of California; Doctor of University, University of Paris (Sorbonne), France.

PLATZ, MARVIN H. (1955) Associate Professor of Education
B.S., Northeast Missouri State Teachers College; M.Ed., Ed.D., University of Missouri.

PLAZEK, JANE E. (Mrs. W.) (1958) Assistant Professor of Education
A.B., M.A., San Diego State College.

PLYMALE, HARRY H. (1962) Assistant Professor of Zoology
B.S., D.V.M., Michigan State University.

POSNER, WALTER H. (1962) Assistant Acquisition Librarian
B.S., Utah State Agricultural College; M.A., Western State College, Colorado; M.A. in L.S., University of Denver.

POST, LAUREN CHESTER (1937) Professor of Geography
A.B., M.A., Ph.D., University of California.

POVENMIRE, E. KINGSLEY (1946) Professor of Speech Arts
B.S., Ohio State University; M.F.A., Yale University.

POWELL, DON W. (1953) Associate Professor of Speech Arts
B.S., Kirksville State Teachers College; M.F.A., State University of Iowa.

PRESTON, DUDLEY A. (1948) Associate Professor of Botany
B.S., Washington State College; M.S., Ph.D., University of Minnesota.

PROUTY, HELEN L. (1950) Professor of Education
B.S., University of Nebraska; M.A., Ph.D., University of California.

PSOMAS, THEMISTOCLES (1957) Assistant Professor of Psychology
B.A., University of Southern California; Ph.D., University of California.

QUIETT, FREDERICK T. (1957) Associate Professor of Engineering
Geol.E., M.S., Colorado School of Mines. Registered Professional Engineer (Mining).

RADER, DANIEL L. (1954) Associate Professor of History
A.B., M.A., Ph.D., University of California.

RAGEN, KATHERINE M. (1947) Professor of History
A.B., Penn College; M.A., Bryn Mawr College; Ph.D., University of Wisconsin.

RAO, M. V. RAMA (1957) Associate Professor of Engineering
B.S.M.E., University of Madras, India; Diploma in Aeronautics, Indian Institute of Science; Postgraduate Diploma in M.E., Imperial College of Science and Technology, London; M.S.M.E., Ph.D., University of Illinois.

†RATTY, FRANK J. (1954) Professor of Zoology
B.A., San Diego State College; M.S., Ph.D., University of Utah.

RAY, ROBERT C. (1961) Physician and Surgeon
B.S. (Medical), University of North Dakota; M.D., Northwestern University.

REHFUSS, DONALD E. (1962) Assistant Professor of Physics
B.A., Reed College; M.A., Ph.D., University of Oregon.

REID, RANDALL C. (1961) Instructor in English
A.B., San Francisco State College; M.A., Stanford University.

RESSEGUIE, LAURENCE J. (1961) Assistant Professor of Zoology
A.B., Ph.D., University of California.

REZNIKOFF, SIMON (1956) Associate Professor of Business Law
B.A., University of Missouri; LL.B., Columbia University.

RICHARDSON, ROBERT W. (1939, except 1946-48) Professor of Geography
A.B., Ph.D., University of California.

RICOIS, MICHELINE M. (1961) Visiting Professor of French
Licence es Lettres, D.E.S., C.A.P.E.S., Agregation, LaSorbonne, Paris.

RIDGE, MARTIN (1955) Associate Professor of History
B.E., Chicago Teachers College; M.A., Ph.D., Northwestern University.

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RIDOUT, LIONEL U. (1946, except 1949-50) Professor of History
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RIEDMAN, RICHARD M. (1962) Assistant Professor of Speech Arts
B.A., M.A., University of Redlands; Ph.D., University of Pittsburgh.

RIGGS, LESTER G. (1950, except 1951-52) Professor of Mathematics
B.S., University of Illinois; M.S., Syracuse University; Ph.D., Northwestern University.

RING, MOREY A. (1962) Assistant Professor of Chemistry
B.S., University of California, Los Angeles; Ph.D., University of Washington.

RIXMAN, EUNICE E. (1960) Assistant Professor of Education
B.M., Illinois Wesleyan University; M.M., University of Michigan.

ROBERTS, ELLIS E. (1949) Professor of Geology
B.S., Michigan College of Mining and Technology; M.S., California Institute of Technology; Ph.D., Stanford University.

ROBERTSON, FRANK O. (1953) Director of Health Services
B.S., M.S., B.S. (Medicine), University of North Dakota; M.D., University of Oregon Medical School.

ROBINSON, DUDLEY HUGH (1928) Chairman, Division of Physical Sciences; Professor of Chemistry
B.S., Louisiana State University; M.S., State University of Iowa; Ph.D., University of Southern California. Registered Chemical Engineer.

ROBINSON, LAURIE R. (1960) Order Librarian
B.A., Texas Western College; M.A., University of Denver.

RODNEY, JOSEPH A (1957) Associate Professor of Education
A.B., M.A., San Diego State College; Ed.M., Ed.D., University of Southern California.

ROEMMICH, HERMAN (1958) Test Officer; Associate Professor of Education
B.A., Jamestown College; M.A., University of Colorado; M.A., Teachers College, Columbia University; Ph.D., University of Washington.

ROGERS, MICHAEL D. (1962) Assistant Placement Officer
B.S., San Diego State College.

ROGERS, PHYLLIS N. (Mrs. R. E.) (1958) Assistant Professor of Speech Arts
B.A., M.A., University of Michigan.

ROGERS, SPENCER LEE (1930) Professor of Anthropology
A.B., San Diego State College; M.A., Claremont College; Ph.D., University of Southern California.

*ROHFLEISCH, KRAMER J. (1947) Professor of History
A.B., M.A., Ph.D., University of California.

ROSS, RAMON R. (1961) Assistant Professor of Education
B.A., Central Washington College; M.Ed., University of Idaho; Ed.D., University of Oregon.

ROST, NORMAN (1951) Associate Professor of Music
B.M., M.M., University of Michigan.

ROTTIER, CATHERINE G. (1962) Assistant Professor of Nursing
Diploma, Mercy Central School of Nursing; B.S.N.E., Catholic University of America; M.A., Teachers College, Columbia University.

ROUEN, EDWARD (1959) Acquisition Librarian
B.S., M.S. in L.S., University of Southern California.

ROWAN, HERMAN T. (1962) Lecturer in Art
B.S., Kansas State Teachers College; M.A., M.F.A., State University of Iowa.

ROWE, ROBERT D. (1946) Professor of Chemistry
A.B., Stanford University; Engineer in Engineering Chemistry; Ph.D., Stanford University.

ROWLAND, MONROE K. (1960) Assistant Professor of Education
B.S., M.A., Ph.D., University of Michigan.

ROY, ELSIE L. (Mrs. O. A.) (1959) Assistant Catalog Librarian
A.B., San Diego State College.

RUETTEN, RICHARD T. (1960) Assistant Professor of History
B.A., Colorado State College; M.A., Ph.D., University of Oregon.

RUJA, HARRY (1947) Professor of Philosophy
A.B., University of California at Los Angeles; M.A., University of Chicago; M.A., San Diego State College; Ph.D., Princeton University.

RUMBAUGH, DUANE M. (1954) Associate Professor of Psychology
A.B., University of Dubuque; M.A., Kent State University; Ph.D., University of Colorado.

RUOCCO, ILSE H. (Mrs. L.) (1934) Professor of Art
B.E., University of California at Los Angeles; M.A., Columbia University.

RYAN, FREDERICK L. (1946) Professor of Economics
B.S., Tufts College; Ph.D., University of California.

SAHM, PATRICIA H. (1962) Assistant Professor of Education
B.S., Butler University; M.A., New York University.

SAIGH, WILLIAM K. (1961) Assistant Professor of Marketing
B.S., M.S., Washington University; Ph.D., St. Louis University.

SALTZ, DANIEL (1959) Assistant Professor of Mathematics
B.A., B.S., University of Chicago; M.S., Ph.D., Northwestern University.

SAMPLES, HOWELL GORDON, JR. (1950) Assistant Education Librarian
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SANDERLIN, GEORGE W. (1955) Professor of English
B.A., American University; Ph.D., Johns Hopkins University.

SANDSTROM, GLENN A. (1956) Associate Professor of English
B.A., M.A., Washington State College; Ph.D., University of Illinois.

SAVAGE, EDITH J. (Mrs. P.) (1960) Assistant Professor of Music
B.S., University of Missouri; M.S., Texas College of Arts and Industries; Ed.D., University of Colorado.

SCHALLES, FRANCES IRENE (1950) Education and Curriculum Materials Librarian
A.B., San Diego State College. Additional graduate study.

SCHEIDE, BENTON F. (1962) Readers Services Librarian
A.B., M.A.L.S., University of Denver.

SCHEIER, GENEVIEVE E. (1962) Assistant Professor of Home Economics
B.S., Kansas State College; M.N.S., Cornell University; Ph.D., University of California.

SCHMIDT, JOHN L. (1957) Associate Professor of Education
B.S., Lawrence College; M.S., Ph.D., University of Wisconsin.

SCHNEIDER, WILLIAM F. (1962) Instructor in Physics
B.S., M.S., San Diego State College.

SCHOPP, JOHN D. (1962) Assistant Professor of Astronomy
B.S., Northwestern University; Ph.D., Princeton University.

SCHRUPP, MANFRED H. (1948) Dean of Education Division; Professor of Education
B.S., M.Ed., Ph.D., University of Minnesota.

SCHUNERT, JIM R. (1948) Professor of Education
B.S., M.A., Ph.D., University of Minnesota.

SCHUTTE, WILLIAM H. (1947) Associate Professor of Physical Education
B.S., University of Idaho; M.S., University of Southern California.

SCOTT, FRANK L. (1947) Professor of Recreation
A.B., Grinnell College; M.A., Ph.D., University of Michigan.

SEBA, FRANZ (1962) Lecturer in German
Graduated, Obergymnasium, Horn, Austria; Professor, University of Vienna, Austria.

SEGAL, EVALYN F. (1960) Assistant Professor of Psychology
A.B., University of Chicago; B.A., Ph.D., University of Minnesota.

SELLMAN, HUNTON D. (1946) Professor of Speech Arts
B.S., Purdue University; M.S., University of Arizona. Additional graduate study at University of California. University of North Carolina and Yale University.

SERVEY, RICHARD E. (1961) Assistant Professor of Education
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SHANNON, FLORENCE S. (Mrs. E. L.) (1933) Associate Professor of Physical Education
A.B., University of California; M.S., University of Southern California.

SHARKEY, GERALD K. (1956) Associate Professor of Marketing
A.B., St. John's University; M.S., Georgetown University; Ph.D., University of Southern California.

SHARTS, CLAY M. (1962) Assistant Professor of Chemistry
B.S., University of California; Ph.D., California Institute of Technology.

SHAW, PETER W. (1955) Associate Professor of Mathematics
B.A., M.A., University of Toronto; Ph.D., Stanford University.

SHELDON, JOHN M. (1962) Assistant Professor of Music
B.Sc., University of North Dakota; M.A., Arizona State University; doctoral candidate, University of Southern California.

SHEPARD, DAVID C. (1956) Associate Professor of Zoology
A.B., Ph.D., Stanford University.

SHIELDS, ALLAN E. (1949) Professor of Philosophy
A.B., University of California; M.A., Ph.D., University of Southern California.

SHIRA, DONALD W., JR. (1958) Assistant Humanities Librarian
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SHOUSE, CLAUDE F. (1946) Professor of English
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SHUTTS, WILLIAM H. (1958) Professor of Engineering
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SINGER, ARTHUR, JR. (1959) Assistant Professor of Education
B.S., Milwaukee State Teachers College; M.S., Ph.D., University of Wisconsin.

SINGLETON, MARVIN K. (1962) Assistant Professor of English
B.A., Yale College; M.A., Ph.D., Duke University.

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*On leave 1962-63.

SINSHEIMER, ALLEN, JR. (1961) Assistant Professor of Business Law
A.B., J.D., University of Chicago.

SKAAR, DONALD L. (1960) Assistant Professor of Engineering
B.E.E., University of Minnesota.

SKINNER, THOMAS D. (1961) Assistant Professor of Speech Arts
B.S., State University of New York; M.A., and additional graduate study, University of Michigan.

SKOLIL, LESTER L. (1951) Professor of Physics
A.B., Doane College; M.A., University of Nebraska; Ph.D., University of California; D.Sc., Doane College, Nebraska.

SLOAN, WILLIAM C. (1961) Assistant Professor of Zoology
B.S., M.S., Ph.D., University of Florida.

SMITH, BYRON L. (1962) Assistant Social Sciences Librarian
A.B., Wesleyan University; M.A., Harvard University; M.L.S., University of Southern California.

SMITH, CHARLES ROBERTS (1933) Associate Professor of Physical Education
A.B., San Diego State College; M.S., University of Southern California.

SMITH, CLIFFORD EDWARD (1937) Professor of Astronomy
A.B., Carleton College; M.A., Swarthmore College; Ph.D., University of California.

SMITH, DEANE FRANKLIN (1939) Associate Professor of Music
B.M., M.M., Northwestern University.

SMITH, HAYDEN R. (1957) Associate Professor of Education
B.A., Albion College; M.A., Ph.D., University of Michigan.

SMITH, J. DAYTON (1955) Professor of Music
A.B., B.M., St. Olaf College; M.M., University of Nebraska; additional graduate study at Florida State University.

SMITH, JOHN R. (1957) Associate Professor of Psychology
B.A., Occidental College; M.A., Ph.D., University of California at Los Angeles.

SMITH, LESTER K. (1957) Humanities Librarian
B.A., San Diego State College; M.S. in L.S., University of Southern California.

*SMITH, LOUIS E., JR. (1946) Professor of Physics
A.B., San Diego State College; Ph.D., University of Washington.

SMITH, NEWTON B. (1954) Professor of Mathematics
B.A., Reed College; M.A., Oregon State College; Ph.D., Iowa State College.

SMITH, WILLIAM P. (1962) Assistant Professor of Psychology
A.B., Duke University; M.A., Ph.D., University of North Carolina.

SNIDER, MERVIN S. (1953) Associate Professor of Music
B.A., Pomona College; M.A., Eastman School of Music; additional graduate study at Northwestern University and Claremont Graduate School.

SNUDDEN, LESLIE W. (1959) Assistant Professor of Accounting
B.S., Northwestern University; M.B.A., University of Southern California. Certified Public Accountant.

SNYDER, WILLIAM S. (1960) Assistant Professor of Philosophy
B.A., Temple University; Ph.D., Princeton University.

SORENSON, GEORGE N. (1946) Chairman, Division of Fine Arts; Professor of Art
A.B., San Diego State College; M.A., University of Southern California; graduate study at University of California and University of Minnesota.

SPANGLER, JOHN A. (1946) Professor of Chemistry
A.B., Ph.D., West Virginia University.

SPANIS, WILLIAM C. (1962) Assistant Professor of Botany
B.A., Queen's University, Canada; M.A., Ph.D., University of California, Los Angeles.

SPORTSMAN, CHARLES C. (1947) Associate Professor of Physical Education
B.S., North Texas State College; M.S., and additional graduate study at the University of Southern California.

SPRINGSTON, CHRISTINE (1930) Professor of Music
B.A., B.M., University of Redlands; M.A., University of Washington, Diplomée d'execution, Conservatoire Americain, Fontainbleau, France.

SRBICH, ALEXANDER L. (1959) Associate Professor of Management
B.S., Officers Technical College, Yugoslavia; M.A., University of Cologne, Germany; B.S.E., M.B.A., University of Michigan; Ph.D., University of Minnesota.

STEVENS, WALTER R. (1956) Associate Professor of Psychology
A.B., Park College; M.A., Ph.D., Michigan State University.

STEWART, CHARLES J. (1955) Associate Professor of Chemistry
B.A., San Diego State College; M.S., Ph.D., Oregon State College.

STEWART, PAUL E. (1953) Professor of Physical Science
A.B., College of Wooster; Ph.D., Stanford University.

STONE, HAMILTON L. (1947) Associate Professor of Engineering
B.S., U.S. Naval Academy; graduate study at U.S. Naval Postgraduate School. Registered Mechanical Engineer.

STONE, JOHN PAUL (1930) Professor of Library Science
B.S., Northwest Missouri State Teachers College; B.S., M.S., University of Illinois; Ph.D., University of Chicago.

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*On leave 1962-63.

STONE, SANFORD H. (1956) Professor of Engineering
B.S.E., M.S.E., University of Michigan; M.S., University of Illinois. Registered Professional Civil Engineer.

STORM, ALVENA (Mrs. Eugene) (1926) Professor of Geography
A.B., M.A., University of California.

STOUGH, MORROW F. (1950) Professor of Education
A.B., Wittenberg College; M.A., University of Pennsylvania; Ph.D., University of California.

STRAND, MARGUERITE R. (Mrs. R. L.) (1955) Associate Professor of Education
A.B., M.A., Florida State College for Women; Ph.D., University of Washington.

STRAUB, LURA LYNN (1948) Professor of Business Education
A.B., Jamestown College; M.C.S., Indiana University; additional graduate study at University of Wyoming and University of Denver.

STROM, LEONARD E. (1959) Assistant Professor of Education
A.B., San Jose State College; M.S., University of Southern California; Ed.D., Teachers College, Columbia University.

*SWIGGETT, JEAN D. (1946) Professor of Art
A.B., San Diego State College; M.F.A., University of Southern California; additional graduate study at Claremont Colleges.

SZABO, ANDREW (1955) Social Sciences Librarian
M.S. in L.S., Drexel Institute of Technology; Ph.D., University of Pecs, Hungary.

TALBOY, RUTH A. (1947) Associate Professor of Home Economics
B.S., Iowa State College; M.A., Stanford University; additional graduate study at Universities of Minnesota, Iowa, and California.

TANZER, JOANN L. (Mrs. J. L.) (1956) Assistant Professor of Art
B.A., M.A., Michigan State University.

TAYLOR, JAMES W. (1950) Professor of Geography
A.B., Northwestern State College; M.A., Ph.D., Louisiana State University.

TAYLOR, KENNETH M. (1949) Professor of Zoology
A.B., M.A., Ph.D., University of California at Los Angeles.

TAYLOR, MERREL A. (1946) Assistant Professor of Zoology
A.B., Indiana University; B.S.F., M.S., University of Michigan; additional graduate study at Scripps Institution of Oceanography.

TEASDALE, JOHN G. (1956) Professor of Physics
A.B., Ph.D., University of California at Los Angeles.

†TEBOR, IRVING B. (1957) Associate Professor of Sociology
B.S., Northern Illinois State Teachers College; M.A., University of Chicago; Ph.D., Oregon State College.

TEMPLIN, JACQUES D. (1962) Assistant Professor of Physics
A.B., University of California; M.A., Ph.D., University of California, Los Angeles.

TERHUNE, JOHN A. (1947) Assistant Professor of Physics
B.S., U.S. Naval Academy; M.S., Harvard University.

TERRY, WILLIAM L. (1946) Chairman, Division of Health Education, Physical Education and Recreation; Professor of Physical Education
A.B., Western Kentucky Teachers College; M.S., Indiana University; Ed.D., Columbia University.

THEOBALD, JOHN R. (1946) Professor of English
B.A., St. Catherine's College, Oxford University; M.A., Mansfield College, Oxford University; Ph.D., University of Iowa.

THIEL, DONALD W. (1957) Associate Professor of Industrial Arts
B.S., University of Nebraska; M.A., Stout State College; Ph.D., Ohio State University.

THOMAS, ALICE E. (Mrs. H.) (1955) Associate Professor of Home Economics
B.S., Bethany College, Kansas; M.A., Columbia University; additional graduate study at Universities of California and Washington.

THOMAS, BLAKEMORE E. (1956) Professor of Geology
A.B., University of California; M.S., Ph.D., California Institute of Technology.

THREET, RICHARD L. (1961) Assistant Professor of Geology
B.S., B.A., M.A., University of Illinois; Ph.D., University of Washington.

TIDWELL, JAMES N. (1947) Professor of English
A.B., Simmons University; M.A., University of Oklahoma; Ph.D., Ohio State University.

TOLLEFSEN, DOROTHY J. (1946) Associate Professor of Physical Education
A.B., M.A., University of California.

TORBERT, FRANCES B. (Mrs. H.) (1937) Professor of Management
A.B., Stanford University; M.A., University of Southern California; additional graduate study at Stanford University.

TOSSAS DE IRIZARRY, LEILA V. (1961) Assistant Professor of Education
B.S., M.A., Ed.D., Teachers College, Columbia University.

TOZER, LOWELL (1954) Associate Professor of English
A.B., University of Chicago; M.A., De Paul University; Ph.D., University of Minnesota.

TREAT, WOLCOTT C. (1950) Professor of Psychology
A.B., Harvard College; A.M., Harvard University; Ph.D., Stanford University.

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*On leave Semester II.
†On leave 1962-63.

TRIMMER, RUSSELL L. (1955)........Professor of Education
A.B., Stanford University; M.A., Ph.D., Claremont Graduate School.

TUCKER, GORDON H. (1945)........Professor of Zoology
B.S., M.S., University of South Carolina; Ph.D., University of North Carolina.

TURNER, MARJORIE S. (Mrs. M. B.) (1954)........Associate Professor of Economics
B.A., M.A., Ph.D., University of Texas.

TURNER, MERLE B. (1950)........Professor of Psychology
A.B., Williamette University; M.A., Stanford University; Ph.D., University of Colorado.

VANDERBILT, KERMIT (1962)........Assistant Professor of English
B.A., Luther College, Iowa; M.A., Ph.D., University of Minnesota.

VAN DE WETERING, R. LEE (1960)........Assistant Professor of Mathematics
B.S., University of Washington; Ed.M., Western Washington College of Education; Ph.D., Stanford University.

VANCE, ROBERT W. (1954)........Physician and Surgeon
B.S., University of South Dakota; M.D., Northwestern University.

VOEKS, VIRGINIA W. (1949)........Professor of Psychology
B.S., M.S., University of Washington; Ph.D., Yale University.

VOGEL, HARVEY (1960)........Assistant Professor of Geography
A.B., Hunter College of the City of New York; M.A., University of Illinois; additional graduate study, Pennsylvania State University.

VOSS, HARWIN L. (1962)........Assistant Professor of Sociology
B.A., North Central College, Illinois; M.S., Ph.D., University of Wisconsin.

WADSWORTH, EARL P., JR. (1956)........Associate Professor of Chemistry
B.S., M.S., University of New Hampshire; Ph.D., Iowa State College.

WALBA, HAROLD (1949)........Professor of Chemistry
B.S., Massachusetts State College; Ph.D., University of California.

WALCH, HENRY A., JR. (1955)........Associate Professor of Microbiology
B.A., Ph.D., University of California at Los Angeles.

WALLACE, MARJORIE E. (1957)........Activities Adviser
B.S., University of Southern California; M.A., San Diego State College.

WALLACE, ROBERT D. (1957)........Associate Professor of Art
B.A., M.A., Stanford University; D.Litt., University of Geneva.

WALLING, CURTIS R. (1931)........Professor of Engineering
A.B., E.E., Stanford University; additional graduate study at Stanford University and the University of Southern California. Registered Electrical Engineer.

WALSH, JAMES L. (1962)........Assistant Professor of Spanish
B.A., University of Nevada; M.A., Mexico City College; doctoral candidate, University of Illinois.

WALSH, MARY A. (Mrs. W. E.) (1955)........Assistant Professor of Education
B.S., Northwestern University; M.A., Teachers College, Columbia University.

WANLASS, DOROTHY C. (1955)........Assistant Professor of English
B.S., Utah State University; M.A., Ph.D., Columbia University.

WARD-STEINMAN, DAVID (1961)........Assistant Professor of Music
B.M., Florida State University; M.M., D.M.A., University of Illinois.

WARE, WILLIAM R. (1962)........Assistant Professor of Chemistry
B.A., Reed College; Ph.D., University of Rochester.

WARMER, MARGERY ANN (Mrs. J. C.) (1956)........Dean of Activities
A.B., M.S., and additional graduate study at the University of Southern California.

WARPEHA, RITA C. (1962)........Assistant Circulation Librarian
B.A. in L.S., College of St. Catherine, Minnesota.

WARREN, E. JUNE (1957)........Admissions Counselor
B.S., Northern State Teachers College, South Dakota; M.A., San Diego State College.

WARREN, LeROY J. (1955)........Associate Professor of Mathematics
B.A., College of Idaho; M.A., Ph.D., University of Oregon.

WATSON, DONALD R. (1939)........Dean of the College; Professor of Physical Science
A.B., B.S., A.M., Ed.D., University of Southern California.

WEBB, CHARLES R., JR. (1949)........Professor of History
A.B., M.A., University of California; M.A., Ph.D., Harvard University.

WEDBERG, HALE L. (1959)........Assistant Professor of Botany
B.A., Los Angeles State College; Ph.D., University of California at Los Angeles.

WEISSMAN, STANLEY N. (1962)........Assistant Professor of Philosophy
A.B., Brooklyn College; doctoral candidate, Columbia University.

WELLS, RICHARD W. (1961)........Instructor in Physical Education
B.A., Occidental College; graduate study, San Diego State College.

WENDLING, AUBREY (1954)........Professor of Sociology
A.B., San Francisco State College; M.A., Ph.D., University of Washington.

WETHERILL, WILLIAM H. (1957)........Associate Professor of Education
B.Ed., University of Toledo; M.A., Stanford University; Ph.D., University of Michigan.

WHITE, ALFRED E. (1946)........Assistant to the Dean of the College; Professor of Education
A.B., M.A., University of California; Ed.D., Stanford University.

WICK, ARNE N. (1958)........Professor of Chemistry
B.S., M.S., Ph.D., University of Minnesota.

WIDMER, KINGSLEY (1956)..........Associate Professor of English
B.A., M.A., University of Minnesota; Ph.D., University of Washington.

WILCOX, ROBERT F. (1950)..........Professor of Political Science
A.B., M.A., Stanford University; M.A., Columbia University; Ph.D., Stanford University.

WILDING, JOHN H. (1960)..........Assistant Professor of Education
B.Arch., Catholic University of America; M.A., Teachers College, Columbia University; Ed.D., University of Southern California.

WILHELM, BETTY J. (1961)..........Assistant Professor of Physical Education
B.S., University of Wisconsin; M.A., University of Michigan.

WILLERDING, MARGARET F. (1956)..........Associate Professor of Mathematics
A.B., Harris Teachers College; M.A., Ph.D., St. Louis University.

WILLIAMS, FLORENCE I. (1962)..........Assistant Professor of Spanish
B.A., Mount Union College, Ohio; M.A., Ph.D., University of Cincinnati.

WILLIAMSON, GLORIA R. (Mrs. C.) (1961)..........Assistant Professor of Physical Education
A.B., M.A., Los Angeles State College.

WIMER, ARTHUR C. (1950)..........Professor of Journalism
B.Lit., Columbia University; M.A., University of Iowa.

WINEMAN, WALTER R. (1956)..........Associate Professor of History
B.S., State Teachers College, Pennsylvania; M.L., Ph.D., University of Pittsburgh.

WITHERSPOON, JOHN P. (1962)..........Associate Professor of Speech Arts
B.A., College of the Pacific; M.A. and doctoral candidate, Stanford University.

WOLF, ERNEST M. (1947)..........Professor of German and Romance Languages
Study at the Universities of Berlin, Paris, Muenster, Cambridge and Bonn. Ph.D., University of Bonn.

WOLTER, GERHARD H. (1957)..........Associate Professor of Physics
B.S., M.S. equivalent, University of Berlin.

WOODSON, JOHN H. (1961)..........Assistant Professor of Chemistry
B.A., Wesleyan University, Connecticut; Ph.D., Northwestern University.

WOTRUBA, THOMAS R. (1962)..........Assistant Professor of Marketing
B.B.A., M.B.A., and doctoral candidate, University of Wisconsin.

YAHR, CHARLES C. (1955)..........Associate Professor of Geography
B.S., M.S., Illinois State Normal University; Ph.D., University of Illinois.

YAMAMURA, KOZO (1962)..........Assistant Professor of Economics
B.A., University of California; M.A. and doctoral candidate, Northwestern University.

YANIZYN, JAMES E. (1962)..........News Bureau Coordinator
B.A., Boston University School of Public Relations.

YARBOROUGH, JOHN M. (1959)..........Director of Housing
B.S., Texas Agricultural and Mechanical College; M.A., Ed.D., Stanford University.

YOUNG, KAREN Y. (1962)..........Assistant Catalog Librarian
A.B., Bowling Green State University; A.M.L.S., University of Michigan.

ZIEGELMAIER, JAMES J. (1961)..........Assistant Professor of Physical Science
B.A., M.A., Catholic University of America; additional graduate study, University of Wisconsin.

ZIEGENFUSS, GEORGE (1948)..........Professor of Physical Education
B.A., University of Washington; M.A., Ed.D., Teachers College, Columbia University.

LECTURERS

ABIDI, MIR SYED F. (1961)..........Lecturer in Chemistry
M.Sc., Punjab University, West Pakistan.

ANDERSON, JOAN B. (Mrs. F. C.) (1961)..........Lecturer in Economics
A.M., Stanford University.

ATKINSON, ELIZABETH T. (Mrs J.) (1962)..........Lecturer in Education
B.A., Pomona College. San Diego City Schools.

BACK, GILBERT A. (1950)..........Lecturer in Music
Professional musician.

BAKER, CAROLE K. (Mrs. R.) (1962)..........Lecturer in Education
Ed.B., University of Hawaii.

BARKLEY, PAUL C. (1962)..........Lecturer in Accounting
B.S., San Diego State College. Certified Public Accountant.

BARRONS, JOHN C. (1962)..........Lecturer in Business Education
M.Ed., University of California, Los Angeles. El Capitan High School.

BARTLETT, GRANT R. (1962)..........Lecturer in Chemistry
Ph.D., University of Chicago. Laboratory for Comparative Biochemistry.

BAUMGARTNER, MARGERY B. (Mrs. R. N.) (1956)..........Lecturer in Education
M.S., Bank Street College of Education.

BEEKLEY, H. DEL (1960)..........Lecturer in Physical Education
Prudential Insurance Company of America.

BEHRENS, CARL F. (1962)..........Lecturer in Economics
M.S., Iowa State College.

BENNETT, CLAYTON L. (1962)..........Lecturer in Education
Ph.D., University of Southern California. San Diego County Schools.

BERLIN, LOIS I. (Mrs. E. D.) (1962) ... Lecturer in Home Economics
B.S., Oregon State College. San Diego City Schools.

BERNARD, JAMES F. (1961) ... Lecturer in Home Economics
M.A., School of Architecture, University of California. Architect.

BLACK, NATHALIA C. (Mrs. V. G.) (1958) ... Lecturer in English
Writer.

BLAKE, RAYMOND J. (1962) ... Lecturer in Education
M.A., San Diego State College. San Diego City Schools.

BODE, FRED R. (1962) ... Lecturer in Education
M.A., Claremont College.

BOOTH, MARY W. (Mrs. C.) (1962) ... Lecturer in Sociology
M.A., University of Chicago.

BOYER, DONALD N. (1962) ... Lecturer in Education
Ed.D., Teachers College, Columbia University. San Diego City Schools.

BRAND, SAMUEL A. (1962) ... Lecturer in Chemistry
M.S., University of Krakow, Poland.

BUCHELE, ROBERT B. (1962) ... Lecturer in Management
Ph.D., School of Business, University of Chicago. General Dynamics Corporation.

CARDEN, WILLIAM C. (1962) ... Lecturer in Zoology
M.S., University of Utah. Grossmont College.

CHAPMAN, RUBIE E. (Mrs. T.) (1962) ... Lecturer in Education
A.B., San Diego State College. San Diego City Schools.

CHATER, ELIZABETH E. (Mrs. M.) (1961) ... Lecturer in English
B.A., University of British Columbia.

COLLINS, ANNA M. (Mrs. C. C.) (1962) ... Librarian I
A.B., University of California.

COLWELL, JOSEPH F. (1962) ... Lecturer in Physics
Ph.D., Cornell University. General Dynamics Corporation.

CUNNINGHAM, JOSEPHINE D. (Mrs. C. C.) (1961) ... Lecturer in Music
M.M., Northwestern University. La Mesa Public Schools.

DAHLIN, RAYMOND D. (1962) ... Lecturer in Speech Arts
M.A., San Diego State College.

DE JULIEN, LORENZ F. (1949) ... Lecturer in Marketing
M.B.A., Harvard Graduate School. Self employed.

DUNN, GLEN R. (1962) ... Lecturer in Accounting
B.S., San Diego State College. Certified Public Accountant.

EHRICKE, KRAFFT A. (1958) ... Lecturer in Physics
M.S., Technical University, Berlin. General Dynamics Corporation.

ELLER, JESSIE S. (Mrs. S.) (1961) ... Lecturer in Music
B.E., University of California, Los Angeles. Escondido Union High School District.

ENGLE, HOWARD E., JR. (1962) ... Lecturer in Accounting
LL.B., University of Washington Law School. Certified Public Accountant. Department of Internal Revenue Service.

ESCAMILLA, AUGUSTINE, (1960) ... Lecturer in Health Education
M.A., San Diego State College. San Diego City Schools.

EVANS, ROBERT (1962) ... Lecturer in Engineering
M.A., Occidental College. Sweetwater Junior College District.

FARNELL, ALBERT B. (1961) ... Lecturer in Mathematics
Ph.D., University of California.

FEIERABEND, ROSALIND A. (Mrs. I.) (1962) ... Lecturer in Sociology
Ph.D., Yale University. California Western University.

FINE, THOMAS W. (1962) ... Lecturer in Education
M.A., Los Angeles State College. Poway School District.

FRASIER, RUTH R. (Mrs. V.) (1962) ... Lecturer in Education
M.A., Stanford University. Cajon Valley School District.

FRIEDMAN, ABRAHAM M. (1962) ... Lecturer in Physical Education
B.S., Springfield College.

GANS, SHELDON P. (1962) ... Lecturer in Political Science
M.C.P., Massachusetts Institute of Technology. San Diego City Planning Department.

GODFREY, ALDEN N. (1962) ... Lecturer in Journalism
M.A., University of Minnesota. Central Federal Savings & Loan Association.

GRAY, DONALD C. (1961) ... Lecturer in Education
M.A., University of California. Imperial Valley College.

HAMMONS, MIRIAM B. (Mrs. L.) (1961) ... Lecturer in Education
M.A., Texas College of Arts and Industries.

HARMON, JAMES E. (1961) ... Lecturer in Political Science
M.S., San Diego State College.

HARTSHORN, ROBERT, JR. (1961) ... Lecturer in Education
M.S., Western Reserve University. Imperial Valley College.

HIETANEN, WAINO V. (1962) ... Lecturer in Industrial Arts
M.A., San Diego State College. San Diego City Schools.

HILL, MAXWELL E., JR. (1962) ... Lecturer in English
B.A., Southeastern Louisiana College. Escondido City Schools.

HILLIX, WILLIAM A. (1962) Lecturer in Psychology
Ph.D., University of Missouri. U. S. Navy Electronics Laboratory.

HOMITZ, WALLACE T. (1962) Lecturer in English
M.A., San Diego State College. San Diego City College.

HOUSE, HERSCHEL A. (1961) Lecturer in Political Science
B.S., U. S. Naval Academy.

HUCKABY, CAROL T. (Mrs. D.) (1962) Lecturer in Education
B.A., San Diego State College. San Diego City Schools.

HUFF, GEORGE D. (1939) Lecturer in Health and Hygiene
M.D., University of Texas Medical School.

HUNTER, LAWRENCE B. (1962) Lecturer in Art
M.A., University of California, Los Angeles.

IVERSON, LUCILLE E. (1960) Lecturer in Physical Education
Lucille Iverson Dance Studio.

JENNINGS, MARY J. (1962) Lecturer in Foreign Languages
M.A., San Diego State College. University of California, San Diego.

JOHNSON, LAVERNE C. (1961) Lecturer in Psychology
Ph.D., Stanford University. U. S. Navy Medical Neuropsychiatric Research Unit.

JONES, BARBARA M. (Mrs. R.) (1962) Lecturer in Education
M.A., University of Redlands.

KALBFELL, DAVID C. (1960) Lecturer in Physics
Ph.D., University of California. Kalbfell Electronix.

KAYE, SAMUEL (1961) Lecturer in Chemistry
Ph.D., Ohio State University. General Dynamics Corporation.

KREGER, SARA A. (Mrs. G.) (1962) Lecturer in Music
B.M., University of the Pacific.

KRIEGER, CHARLES J. (1958) Lecturer in Astronomy
Ph.D., University of California. U. S. Navy Electronics Laboratory.

KRONEMYER, ROBERT E. (1955) Lecturer in Accounting
M.A., Univresity of Chicago. Certified Public Accountant. Attorney.

KUHN, JAMES B. (1962) Lecturer in Accounting
B.A., San Diego State College. Certified Public Accountant. Lister, Kuhn & Turner.

LAMB, ALMA S. (Mrs. G. F.) (1962) Assistant Education Librarian
B.S., University of Alabama.

LEADON, BERNARD M. (1960) Lecturer in Engineering
Ph.D., University of Minnesota. General Dynamics Corporation.

LEE, C. LORAN (1962) Lecturer in Education
M.A., Arizona State University. Imperial Valley College.

LENOX, TOMALINE S. (Mrs. D.) (1962) Lecturer in Education
B.A., San Diego State College.

LOOMIS, NOEL M. (1958) Lecturer in English
Writer.

MAROSZ, WANDA A. (Mrs. H.) (1959) Lecturer in Mathematics
M.A., University of Southern California.

MARTINELLI, JOHN T. (1961) Lecturer in Accounting
M.B.A., University of Chicago. University of San Diego.

MATHIS, NELDA J. (1962) Lecturer in Education
M.A., Teachers College, Columbia University. Imperial Valley College.

MEDVED, DAVID B. (1962) Lecturer in Physics
Ph.D., University of Pennsylvania. General Dynamics Corporation.

MONTAGUE, WILLIAM E. (1961) Lecturer in Psychology
Ph.D., University of Virginia. U. S. Navy Electronics Laboratory.

MORPHEW, JESSE D. (1962) Lecturer in Industrial Arts
A.B., San Diego State College. San Diego City Schools.

MOVSESIAN, EDWIN A. (1960) Lecturer in Education
M.M., University of Southern California. Brea Public Schools.

MURRAY, EARL B. (1959) Lecturer in Music
Conductor, San Diego Symphony Orchestra.

MYRICK, JACK A. (1960) Lecturer in Management
B.B.A., California Western University. Rohr Aircraft Corporation.

McDONALD, DAVID G. (1962) Lecturer in Psychology
Ph.D., Washington University. U. S. Navy Medical Neuropsychiatric Research Unit.

NEPTUNE, DAVID W. (1961) Counseling
M.S., California Institute of Technology. College YMCA-YWCA.

NICHOLS, MYRON H. (1960) Lecturer in Physics
Ph.D., Massachusetts Institute of Technology.

NORRIS, WILL V. (1960) Lecturer in Physics
Sc.D., Colorado School of Mines.

OBATA, JAMES K. (1961) Lecturer in Mathematics
M.A., San Diego State College. San Diego City College.

PALMER, CHESTER H. (1962) Lecturer in English
M.A., University of Arizona. Grossmont College.

PIKE, RAYMOND F. (1962) Lecturer in English
M.A., San Diego State College.

PRENN, JAMES L. (1960) Lecturer in English
B.A., San Diego State College.

PRITCHARD, LOYD C. (1961) Lecturer in Education
M.A., University of Florida. Imperial Valley College.

PUMPHREY, DAN L. (1962) Lecturer in English
B.A., San Diego State College. Granite Hills High School.

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